

**PHASE II ENVIRONMENTAL SITE ASSESSMENT
308 FOUR CREEK ROAD (EAST PORTION),
NIAGARA-ON-THE-LAKE (ST. DAVID'S), ON
DECEMBER 7, 2023**

Prepared for:

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1.0 EXECUTIVE SUMMARY

At the request of Mr. Rainer Hummel of Sleek Developments Inc (the Client), a Phase II Environmental Site Assessment of Contamination and Delineation was conducted of a site (the 'Site') located at 308 Four Mile Creek Road, Niagara on the Lake (St Davids), Ontario.

The assessment was conducted in accordance with the requirements set out in Schedule D Phase Two Environmental Site Assessments of the Ministry of Environment's O. Reg 511/09. The procedure involved a records review, site reconnaissance, and interviews.

A report entitled "Phase 1 Environmental Site Assessment, 308 Four Mile Creek Road, Niagara on the Lake (St Davids), On., August 18, 2023", was conducted by A. Breberina P. Geo. The findings are summarized as follows:

The Phase I Study Area (SA) was set at 250 m.

(i) Current and Past Uses

The Site is mostly undeveloped except for a single detached house at the south part of the Site which was erected circa 1965 and is currently occupied for residential use. Four Mile Creek meanders through the Site from the east side to the west side and then north exiting at the northwest corner of the Site

The portion of the Site which is south and west of Four Mile Creek which runs through the property, has historically been used for agricultural use as orchards from at least 1934 till about the 1980s when most of the land was left as open field.

The portion of the Site north and east of Four Mile Creek was owned by the former cannery operation on the east side of Four Mile Creek Road and as early as 1934 had several buildings on it that were used to house migrant workers until about 1965 when the area was cleared for a gravel parking pad. The pad was used to store recreational vehicle trailers from 2013 till 2020 and has remained vacant and undeveloped since then.

(ii) Potentially Contaminating Activity

The following potentially contaminating activities were identified in the Phase One Property:

- PCA #1 - The former use of the portion of the phase one property west and south of Four Mile Creek and the portion of the Phase One property along the north side east of Four Mile Creek as an orchards indicates there may have been pesticides used on the phase one property (Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents))

Manufacturing, Processing, Bulk Storage and Large-Scale Applications). The soil on the portion of the Phase One property along the north side east of Four Mile Creek was sampled and analyzed for OC pesticides and metals in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

- PCA #2 – The potential historical presence of a former fuel oil storage tank located on the south side of house at the south portion of the property (Item #28. Gasoline and Associated Products Storage in Fixed Tanks).
- PCA #3 – It was reported that after the buildings were removed on the portion of the Phase One Property north and east of the Four Mile Creek some foundry sand was placed to level parking area (Item #30 Importation of Fill Material of Unknown Quality). The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.
- PCA #4 – It was reported that one the buildings on the portion of the Phase One Property north and east of the Four Mile Creek burned down (Item #NOS Not Otherwise Specified). The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals and PAHs in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.
- PCA #5 – The portion of the Phase One Property north and east of the Four Mile Creek has historically been used as a parking pad and therefore there is potential SAR and EC impacts to the surface soil from possible de-icing activities with salt (Item #NOS Not Otherwise Specified). The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals and SAR and EC in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

Potentially contaminating activities in the phase one study area are:

- PCA #6 - Former and current agriculture on properties within the study area (Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications).
- PCA #7 - There were several fuel storage tanks, both aboveground and underground located on the adjacent property to the east of the phase one property, 329 Four Mile Creek Road. It seems that some tanks had been decommissioned but the details and any analytical data were not available. (Item #28. Gasoline and Associated Products Storage in Fixed Tanks).
- PCA #8 - Presence of four (4) aboveground fuel storage tanks located on the portion of the property to the east of the phase one property. (Item #28. Gasoline and Associated Products Storage in Fixed Tanks). The PCA is downgradient of the Phase One Property and the property was

remediated in 2019 to Table 2 SCS, upon which a RSC for residential use was filed with MECP.

- **PCA #9** – Electrical transformer (former PCB containing) on the adjacent property located east of the phase one property, 365 Four Mile Creek Road. Item # 55 Transformer Manufacturing, Processing and Use. However, there is no evidence to indicate that it is an area of potential environmental concern on the phase one property. Although it is within the 250-meter study area, it is approximately 190m northeast of the phase one property and the inferred groundwater flow is northerly away from the phase one property.

(iii) Areas of Potential Environment Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA	Contaminants of Concern	Media Potentially Impacted
APEC #1 Former orchard on the phase one property	The portion of the Phase One Property west and south of Four Mile Creek	40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-site and off-site	OC pesticides and metals	Soil
APEC #2 Former fuel storage tank	Located south of the south wall of the house at the south end of the Phase One Property.	. Item #28. Gasoline and Associated Products Storage in Fixed Tanks.	On-Site	BTEX and PHC	Soil and groundwater
APEC #3 Former fuel storage tanks	The portion of the Phase One Property west and south of Four Mile Creek	. Item #28. Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	BTEX and PHC	Soil and groundwater

A Phase II Environmental Site Assessment is required to assess the APECs before a Record of Site Condition can be submitted with respect to the phase one property.

The program involved: location of underground utilities marked by public utilities; advancement of 3 boreholes; soil sampling; monitoring well installation; soil and groundwater sampling and analysis; and, assessment of the findings and reporting of same.

Based on the site characteristics, the Site Condition Standard (SCS) for the phase two property that has been selected in accordance with the O. Reg 153/04, as amended, are the generic standards for the residential/parkland/institutional land use in a potable groundwater condition for fine to medium textured soils. (Table 8 – full depth clean-up).

The native soils encountered during borehole drilling generally consisted of brown to grey clay silt with traces of fine gravel to depth. No product, film, sheen, staining or odours were noted in the sub-surface soils. Grain size analysis of the soil determined the soil was fine to medium textured.

Static groundwater levels ranged from 0.927 m below grade surface (bgs) (108.123 m above sea level (masl)) in BH/MW1 to 5.068 mbgs (113.052 masl) in MW/BH2. The

vertical hydraulic gradients were not calculated because there was no contamination greater than the site condition standard. Based on the ground water elevations the ground water flow direction is to the north-northwest. No free product, film, sheen or odours were noted in any of the ground water samples or identified by the interface probe.

There were no soil samples that exceeded the SCS for metals, OC pesticides, BTEX or PHC. There is no evidence that the PCAs have impacted the groundwater under the Phase Two Property.

There were no groundwater samples that exceeded the SCS for metals, OC pesticides, BTEX or PHC. There is no evidence that the PCAs have impacted the groundwater under the Phase Two Property.

The relative percent difference (RDF) of the quality control samples were within acceptable limits or could not be calculated due to the results being less the laboratory minimum detection limit.

All contaminants of concern for soil and groundwater on the Phase Two Property now meet the generic standards for the residential/parkland/institutional land use in a potable groundwater situation for fine to medium textured soils. (Table 8 – full depth clean-up). Therefore, no further work is warranted and a Record of Site Condition may be filed.

2.0 INTRODUCTION

(a) Phase II Property Information

Table 1a: Site Information	
Municipal Address	308 Four Mile Creek Road, St. David's
Property Description and Property Identification Number (PIN)	Part 1 Plan of Part Township Lot 89, Geographic Township of Niagara, Town of Niagara-on-the-Lake, Regional Municipality of Niagara. being all of PIN 46372-0721(LT).
Registered Owner	Sleek Developments Inc.
Zoning	'RD17' – Residential Development
Site Area/Shape	Irregular
Frontage	216.586
Depth	88.632

Table 1b: Contact Information	
Item	Site Owner
Organization	Sleek Developments Inc.
Contact	Rainer Hummel
Title	President
Address	P.O. Box 612, St. David's, Ontario L0S 1P0
Phone	905-262-0346

Table 1c: Client Information	
Item	Site Owner
Organization	Sleek Developments Inc.
Contact	Rainer Hummel
Title	President
Address	P.O. Box 612, St. David's, Ontario L0S 1P0
Phone	905-262-0346

(i) Current and Future Uses

The phase two property is currently under a mix of agricultural, residential and commercial land use and its intended use is residential.

(ii) Applicable Site Condition Standard

The phase two property has been determined to be considered as sensitive site under Section 41, Ontario Regulation 153/04 as defined as follows:

Criteria	Decision for the Subject Site
41. (1) This section applies in relation to a property if,	
(a) the property is within an area of natural significance, or includes or is adjacent to such an area or part of such an area;	No
(b) the soil at the property has a pH value as follows: (i) for surface soil, less than 5 or greater than 9, (ii) for subsurface soil, less than 5 or greater than 11;	No
(c) the property is a shallow soil property;	No
(d) the property includes or is adjacent to a water body or includes land that is within 30 m of a water body;	Yes
(e) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property.	No

In Section (1) (a) above, "area of natural significance" means any of the following:

1. A provincial park designated by a regulation under the *Provincial Parks Act*.
2. A conservation reserve established under the *Public Lands Act*.
3. An area of natural and scientific interest (life science) identified by the Ministry of Natural Resources as having provincial significance.
4. A wetland identified by the Ministry of Natural Resources as having provincial significance.
5. An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant.
6. An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the *Niagara Escarpment Planning and Development Act*.
7. A habitat of endangered or threatened species identified by the Ministry of Natural Resources.
8. Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the *Oak Ridges Moraine Conservation Act, 2001*.

The phase two property is currently under commercial/residential/agricultural land use and its intended use is residential.

The site has access to municipal water supply.

Based on the above, the Site Condition Standard (SCS) for the phase two property that has been selected in accordance with the O. Reg 153/04, as amended, are the generic standards for the residential/parkland/institutional land use in a potable groundwater situation for fine to medium textured soils. (Table 8 – full depth clean-up).

3.0 BACKGROUND INFORMATION

(i) Physical Setting

Water Bodies and Areas of Natural Significance (ANSIs)

The Four Mile Creek enters onto the east side of the Site and meanders to the west and then northward along the west property line and eventually drains in Lake Ontario. The creek is considered to be a Niagara Peninsula Conservation Authority regulated area.

There were no ANSIs or Provincially Significant Wetlands identified within or directly adjacent to the phase one property.

Topography and Surface Water Drainage

A topographic map was obtained from Ecolog ERIS. A copy of the map is included in the appendices. Topographic mapping for the phase one property indicated that the surface elevation of the phase one property is above 115 metres above sea level (masl) and dips to the north toward Four Mile Creek below 110 masl.

Geology

The site is situated within the physiographic region known as the Iroquois Plain (Chapman and Putnam, 1984). The Iroquois Plain is the low land extending between Lake Ontario and the Niagara Escarpment that was inundated in late Pleistocene times by glacial Lake Iroquois. The plain is flat and is covered by lacustrine deposits of sand, silt, and clay overlying the Halton Till.

Subsurface soil conditions as described by the Quaternary Geology of Ontario Map 2556 from the Ministry of Northern Development and Mines are Glaciolacustrine deposits: silt and clay, minor sand; basin and quiet water deposits.

According to the General Physiography of the Niagara Peninsula Map adapted from Brock University Department of Geography the site is situated in a clay plain.

According to the Ontario Geological Survey 2011, bedrock geology of Ontario, bedrock is characterized as sandstone, shale, dolostone and siltstone. This area is known as the Queenston Formation.

According to Map P 2400, Ontario Geological Survey Bedrock Topography Series, Niagara and Niagara-on-the-Lake area, bedrock is found at an average of 31 metres from the surface.

Fill Materials

In 2021 Four Mile Creek was re-aligned along the west side of the Site. Soil excavated from the new creek valley was used as backfill in the old creek valley.

Well Records

According to the MOECC Well Records and the ERIS report there are eighteen (18) water wells located within a 300-metre radius of the phase one property. Three (3) of these wells have been abandoned, four (4) are water supply wells, two (2) are observation wells and nine (9) are described as test holes. According to these well records the average depth to bedrock is 30.5 metres and the average static water level is approximately 2.7 metres below surface.

(ii) Past Investigation(s)

A report entitled "PHASE ONE ENVIRONMENTAL SITE ASSESSMENT, 308 Four Creek Road, Niagara-on-the-Lake (St. David's), ON", dated November 13, 2017, and prepared by DML Environmental Services Ltd. for Hummel Properties Inc. was reviewed. The Phase One property covered in the DML Phase I only covered the west portion of the Phase One Property as defined in this assessment. The findings of the report area summarized as follows:

"Current and Past Uses

Year	Name of Owner	Description of Property Use	Property Use	Other Observations from Aerial Photographs, Fire Insurance Plans, Etc.
Prior to 1867	James Currie	Agricultural or other use	Agricultural or other use	Land Title Search
1867 to 1901	David J Lowry	Agricultural or other use	Agricultural or other use	Land Title Search
1901 to 1915	Edwin David Lowry	Agricultural or other use	Agricultural or other use	Land Title Search
1915 to 1953	Rose Evelyn Lowry	Agricultural or other use	Agricultural or other use	Vivian Augusta acquired a portion of the phase one property from Charles M Lowry along with Henry Evans Lowry and Edwin David Lowry. The land was transferred back to Edwin David Lowry the same day that Edwin transferred the land to Rose Evelyn Lowry (land title search).
1953 to 2014	Lorne Frederick Niven and Marian Alice Niven	Agricultural or other use	Agricultural or other use	From 1961 to 1986 the phase one property was in the name of The Director of Veterans Land Act until the land was returned to Lorne and Marian. (Land Title Search)
2014 to present	Sleek Developments Inc.	Agricultural or other use	Agricultural or other use	Land Title Search

Potentially contaminating activities on the phase one property are:

1. *The former use of the phase one property as a farm. Item #40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Application.*
2. *Fuel oil spills on the south side of the house. Item #28. Gasoline and Associated Products Storage in Fixed Tanks.*

Potentially contaminating activities in the phase one study area are:

3. *Former and current agriculture on properties within the phase one study area. Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications.*
 4. *There were a number of fuel storage tanks, both aboveground and underground located on the adjacent property to the east of the phase one property, 329 Four Mile Creek Road. Apparently some tanks had been decommissioned but the details and any analytical data were not available. Item #28. Gasoline and Associated Products Storage in Fixed Tanks.*
- *PCA #1 - The former use of the phase one property as an orchard indicates*

Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA	Contaminants of Concern	Media Potentially Impacted
APEC #1 Former orchard on the phase one property	Entire phase one property	40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-site	OC Pesticides	Soil and Groundwater
APEC #2 Former heating oil tank in the basement – potential spills outside in the fill area	Southern portion of the phase one property next to the house,	28. Gasoline and Associated Products Storage in Fixed Tanks	On-site	Petroleum Hydrocarbons & BTEX	Soil and Groundwater
APEC #3 Former agriculture on properties within the phase one study area	Entire phase one property	40. Pesticides Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Off-Site	OC Pesticides	Groundwater
APEC #4 Under ground fuel storage tanks within the phase one study area	East portion of phase one property	28. Gasoline and Associated Products Storage in Fixed Tanks	Off-Site	Petroleum Hydrocarbons & BTEX	Groundwater

The site reconnaissance, evaluation of environmental reports and records review and assessment of the information obtained through interviews all lead to the conclusion that one or more contaminants resulting from past uses of the phase one property or impacts from off-site activities may have affected the land or water on, in or under the phase one

property. Therefore a phase two environmental site assessment is recommended before a record of site condition may be submitted with respect to the phase one property.

There is no uncertainty or an absence of information obtained in each of the components of the phase one environmental site assessment which would affect the conclusion.

“A report entitled “SOIL QUALITY ASSESSMENT, 308 Four Creek Road, Niagara-on-the-Lake (St. David’s), ON”, dated January 3, 2022, and prepared by A. Breberina P. Geo. for Hummel Properties Inc. was reviewed. The report is summarized as follows:

“The former shallow field stone foundations, other residual surface structures, gravel base and sub-base materials and surface soils were removed off site from the portion of 308 Four Mile Creek Road that lies east of the former Four Mile Creek bed. The purpose of the program is to assess the environmental quality of surface soils to determine if they are suitable for the intended use.

It is understood, that Site was formerly owned by a former fruit cannery which had a plant on the east side Four Mile in the surface granular fill. A review of historical aerial photographs was conducted, and the residential buildings were identified as far back on a 1934 photograph, which also showed orchard use along the north portion of the Site. Subsequent photographs also identified the Site being used for Creek Road, and the Site had a couple of older buildings on the Site dating back to at least the 1930s that were used house temporary workers. One of buildings was reported to have burned down and some foundry sand was noted parking lot in the early 2000s and storage area for new and used house trailers. Based on this cursory historical review of PCAs on the Site the following CoCs in the surface soil: metals and inorganics; petroleum hydrocarbons (PHC); benzene, toluene, ethylbenzene and xylenes (BTEX); polyaromatic hydrocarbons (PAHs) and organo-chlorinated (OC) pesticides.

- 10 surface soil samples were taken on December 6, 2021, with a handheld stainless-steel auger a depths of between 0 to 30 cm in depth below grade surface at representative locations in the cleared area on the Site.*
- Soil samples were submitted to a certified laboratory for analysis as follows: 10 of the samples (A1201, 1202 and A1204 to A1211) were analyzed for metals and inorganics, PHC and BTEX; 7 of the soil samples from around the building areas were analyzed for PAHs; 3 of the samples from the north end of the Site were analyzed for OC Pesticides; and, a composite sample (A1200) was submitted for soil texture determination. One soil sample (A1203 of A1201 for metals, inorganics, PHC, BTEX and OC pesticides; and A1212 of A1211 for PAHs) for each parameter was also selected for analysis for QA/QC purposes.*
- The analytical results were compared to the MOECC, Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act.” Table 8, Generic Site Conditions Standards for Use within 30 m of a Water Body in a*

- *Soil encountered were a brown silty clay. Laboratory grain size analysis determined the soil to be fine to medium textured in accordance with O. Reg.153/04.*
- *All surface soil samples of the cleared area meet the Table 8 SCS for metal, inorganics, PHC, BTEX, OC pesticides and PAHs. Soil conditions consisted of approximately 0.6m of gravel and sand overlaying brown clay with some silt.*

No other environmental reports were identified or reported.

4.0 SCOPE OF INVESTIGATION

(i) Overview of Site Investigation

This PII-ESA was carried out in accordance with Part VII of the Ministry of Environment's O. Reg 511/09 and the requirements set out in TABLE 1 Mandatory Requirements for Phase Two Environmental Site Assessment Reports.

i) The general objectives of the PII-ESA are:

- To develop a field investigation, based on the findings of the PI-ESA, to determine if the phase two property meets applicable site condition standards.
- To develop a sampling and analysis program, based on the findings of the PI-ESA, to address adequately all areas where contaminants may be present in land or water, in or under the property.
- To develop a quality assurance program to ensure the data collected is useful, accurate and appropriate to determine if the phase two property meets applicable site condition standards.

ii) The Phase II ESA scope of work included:

- Planning a sampling and analysis program;
- Planning a quality assurance program to ensure the objectives are met;
- Location of underground utilities marked by public utilities;
- Advancement of three boreholes to 6.04 m., each instrumented with a groundwater monitoring well fitted with test pits;
- Soil and groundwater sampling and analysis;
- An evaluation of the information gathered from the field investigation and analytical results;
- A phase two conceptual site model;
- Conclusions determining if the site conditions meet site condition standards for the intended use before a record of site condition can be submitted.

iii) Disclosure of Interest

The author does not have any material interest, direct or indirect, in the Site or the Client. Except for remuneration and information research fees received for the performance of this assessment, the author will not receive any profit or specialized information from the Client that would benefit the author.

iv) Limitations and Use of this Report

The data reported and the findings, observations, and conclusions expressed in this report are limited by the Scope of Work.

The author has conducted this assessment in accordance with generally accepted professional practices, as performed at the same or similar locations related to the nature of this assigned work. The author's services are not subject to any expressed or implied warranties whatsoever.

The author has accepted information provided by third parties in good faith, but has not completed independent evaluations as to the accuracy or completeness of such information, and shall therefore not be responsible for any errors or omissions contained in such information.

The Site inspection pertaining to this assessment, and associated findings, observations, and opinions, are based solely on the Site conditions encountered at the time of the investigation. Changes in conditions may occur after the completion of this investigation. The passage of time, manifestation of latent conditions, or future events, may require further study, analysis of data, and re-evaluation of the findings, observations, and conclusions in this report.

This report is provided as a measure of due diligence and to assess risks with respect to environmental soil impairment, but it should not be considered as exhaustive or absolute in coverage; no investigation can totally eliminate the possibility that environmental impairment may exist at a site.

Regulatory requirements or their interpretations may be revised by the governing agencies, resulting in future changes to the recommended works, or remediation needs.

The conclusions presented in this report are professional opinions based upon data and conditions described herein. They are intended only for the purpose, site, and project indicated. This report is not a definitive study of contamination at the site, and should not be interpreted as such. A qualitative evaluation of soil conditions was not performed as part of this investigation. No sampling or chemical analyses of structural materials or other equipment, processes, or related media was performed in this study unless explicitly stated.

This report presents professional opinions and findings of a scientific and technical nature. Because of the stated limitations, the findings, observations, opinions and conclusions expressed by the author in this report are not, nor should not be, considered an opinion concerning the compliance of any past or present owner of the site, with any Federal, Provincial, or municipal law or regulation.

The report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations or policies of Federal, Provincial or local government agencies.

The author has prepared this report for the exclusive use of the Client. This report shall not be used or relied upon by outside parties without the written consent of the author. Any use of this report constitutes acceptance of the limits of liability that may

apply to the author. Any such liability extends only to the client of the author and not to any other parties who may obtain the report.

If new information or conditions of concern are discovered during future work, including Site assessments, excavations, borings, or other studies, the author should be requested to re-evaluate the assessments and conclusions presented in this report and to provide amendments as required.

(ii) Media Investigated

The investigation consisted of a sub-surface investigation of a sampling of soil and groundwater program to assess potential impacts from metals, hydrides, OC pesticides, VOCs, BTEX and PHC above the Table 8.

(iii) Phase One Conceptual Site Model

Areas where PCAs on, or potentially affecting the phase one property has occurred – Areas where PCAs on, or potentially affecting the phase one property include:

The following potentially contaminating activities were identified in the Phase One Property:

PCA #1 - The former use of the portion of the phase one property west and south of Four Mile Creek and the portion of the Phase One property along the north side east of Four Mile Creek as an orchards indicates there may have been pesticides used on the phase one property (Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications). The soil on the portion of the Phase One property along the north side east of Four Mile Creek was sampled and analyzed for OC pesticides and metals in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

PCA #2 – The potential historical presence of a former fuel oil storage tank located on the south side of house at the south portion of the property (Item #28. Gasoline and Associated Products Storage in Fixed Tanks).

PCA #3 – It was reported that after the buildings were removed on the portion of the Phase One Property north and east of the Four Mile Creek some foundry sand was placed to level parking area (Item #30 Importation of Fill Material of Unknown Quality). The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

PCA #4 – It was reported that one the buildings on the portion of the Phase One Property north and east of the Four Mile Creek burned down

(Item #NOS Not Otherwise Specified). The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals and PAHs in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

PCA #5 – The portion of the Phase One Property north and east of the Four Mile Creek has historically been used as a parking pad and therefore there is potential SAR and EC impacts to the surface soil from possible de-icing activities with salt. The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals and SAR and EC in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

Potentially contaminating activities in the phase one study area are:

PCA #6 - Former and current agriculture on properties within the study area (Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications).

PCA #7 - There were several fuel storage tanks, both aboveground and underground located on the adjacent property to the east of the phase one property, 329 Four Mile Creek Road. It seems that some tanks had been decommissioned but the details and any analytical data were not available. (Item #28. Gasoline and Associated Products Storage in Fixed Tanks).

PCA #8 - Presence of four (4) aboveground fuel storage tanks located on the portion of the property to the east of the phase one property. (Item #28. Gasoline and Associated Products Storage in Fixed Tanks). The PCA is downgradient of the Phase One Property and the property was remediated in 2019 to Table 2 SCS, upon which a RSC for residential use was filed with MECP.

PCA #9 – Electrical transformer (former PCB containing) on the adjacent property located east of the phase one property, 365 Four Mile Creek Road. Item # 55 Transformer Manufacturing, Processing and Use. However, there is no evidence to indicate that it is an area of potential environmental concern on the phase one property. Although it is within the 250-meter study area, it is approximately 190m northeast of the phase one property and the inferred groundwater flow is northerly away from the phase one property.

(i) Areas of Potential Environment Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA	Contaminants of Concern	Media Potentially Impacted
APEC #1 Former orchard on the phase one property	The portion of the Phase One Property west and south of Four Mile Creek	40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-site and off-site	OC pesticides and metals	Soil
APEC #2 Former fuel storage tank	Located south of the south wall of the house at the south end of the Phase One Property.	. Item #28. Gasoline and Associated Products Storage in Fixed Tanks.	On-Site	BTEX and PHC	Soil and groundwater
APEC #3 Former fuel storage tanks	The portion of the Phase One Property west and south of Four Mile Creek	. Item #28. Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	BTEX and PHC	Soil and groundwater

(ii) Rationale for APECs :

APEC 1 = The former use of the portion of the phase one property west and south of Four Mile Creek and the portion of the Phase One property along the north side east of Four Mile Creek as orchards indicates there may have been pesticides used on the phase one property (Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications). There has also been historical use of adjacent properties to the south, west and north of the Phase One Property, and there is the potential of overspray pesticides onto the surface soils of the Phase One Property. The soil on the portion of the Phase One property along the north side east of Four Mile Creek was sampled and analyzed for OC pesticides and metals in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCSPesticides were suspect of being used on the Phase One Property when it was used as fruit storage area.

APEC 2 – The potential historical presence of a former fuel oil storage tank located on the south side of house at the south portion of the property. There is potential contamination to the soil and groundwater of fuel oil from leakage and spillage around the UST.

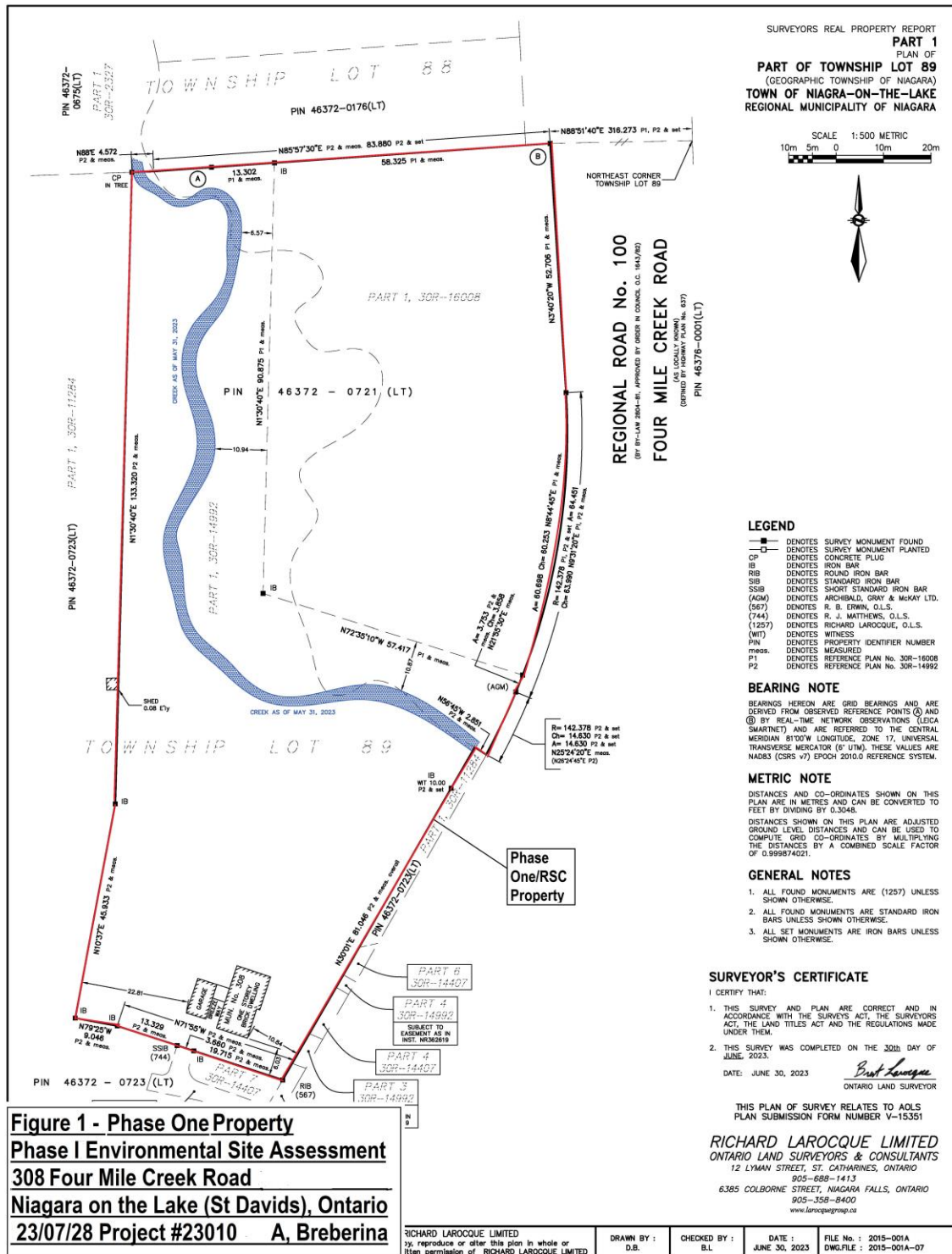
APEC 3 – There were several fuel storage tanks, both aboveground and underground located on the adjacent property to the east of the phase one property, 329 Four Mile Creek Road, which is upgradient of the Phase One Property. It seems that some tanks had been decommissioned but the details and any analytical data were not available. There is potential contamination to the soil and groundwater of fuel oil from leakage and spillage around the USTs which may have migrated onto the northeast portion of the Phase One Property.

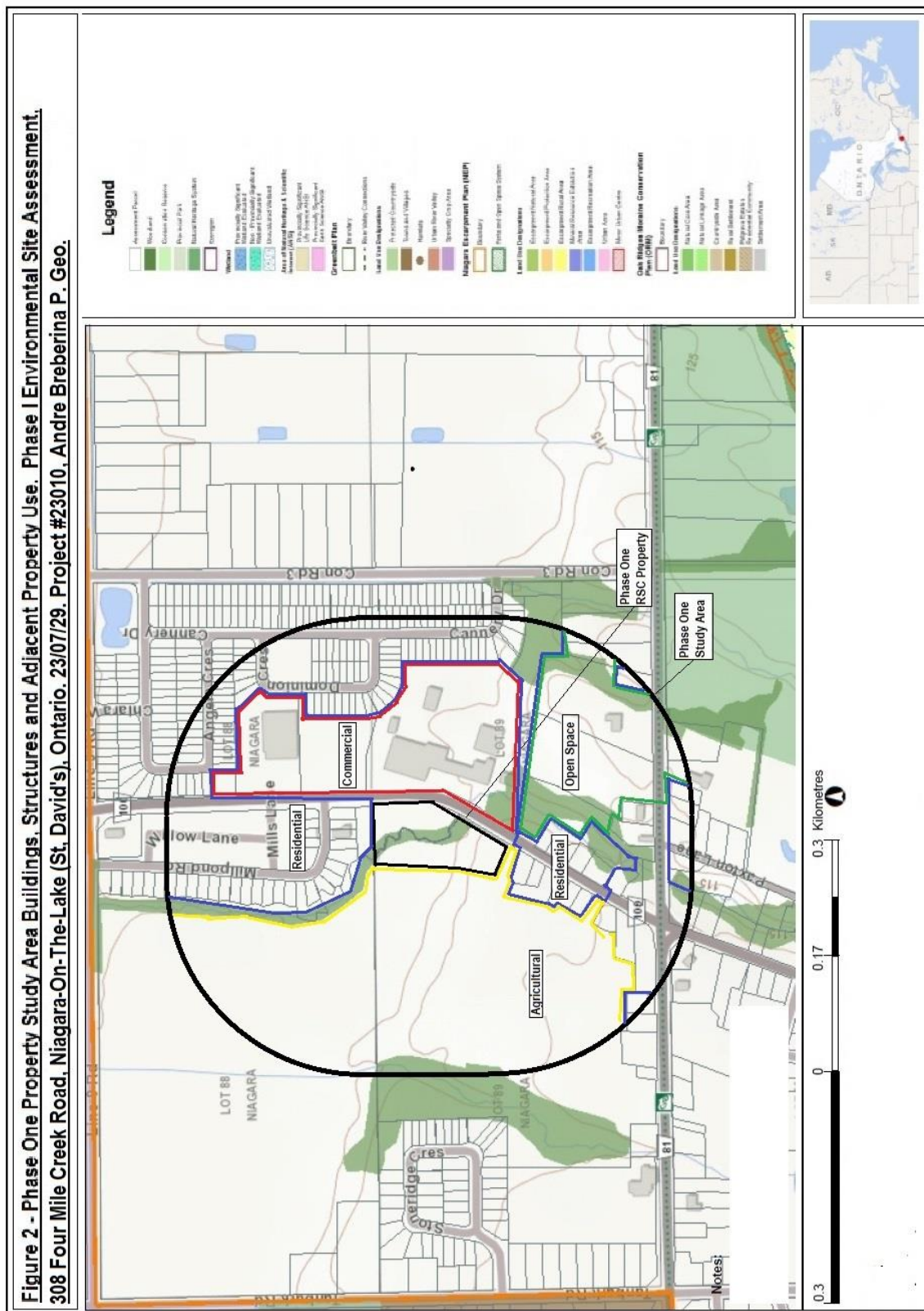
- (iii) Contaminants of Potential Concern – The contaminants of potential concern in APEC 1 are OC pesticides and metals. The contaminants of potential concern in APECs 2 and 3 are VOCs, PHC and metals.
- (iv) Underground Utilities – The following underground utilities were identified:

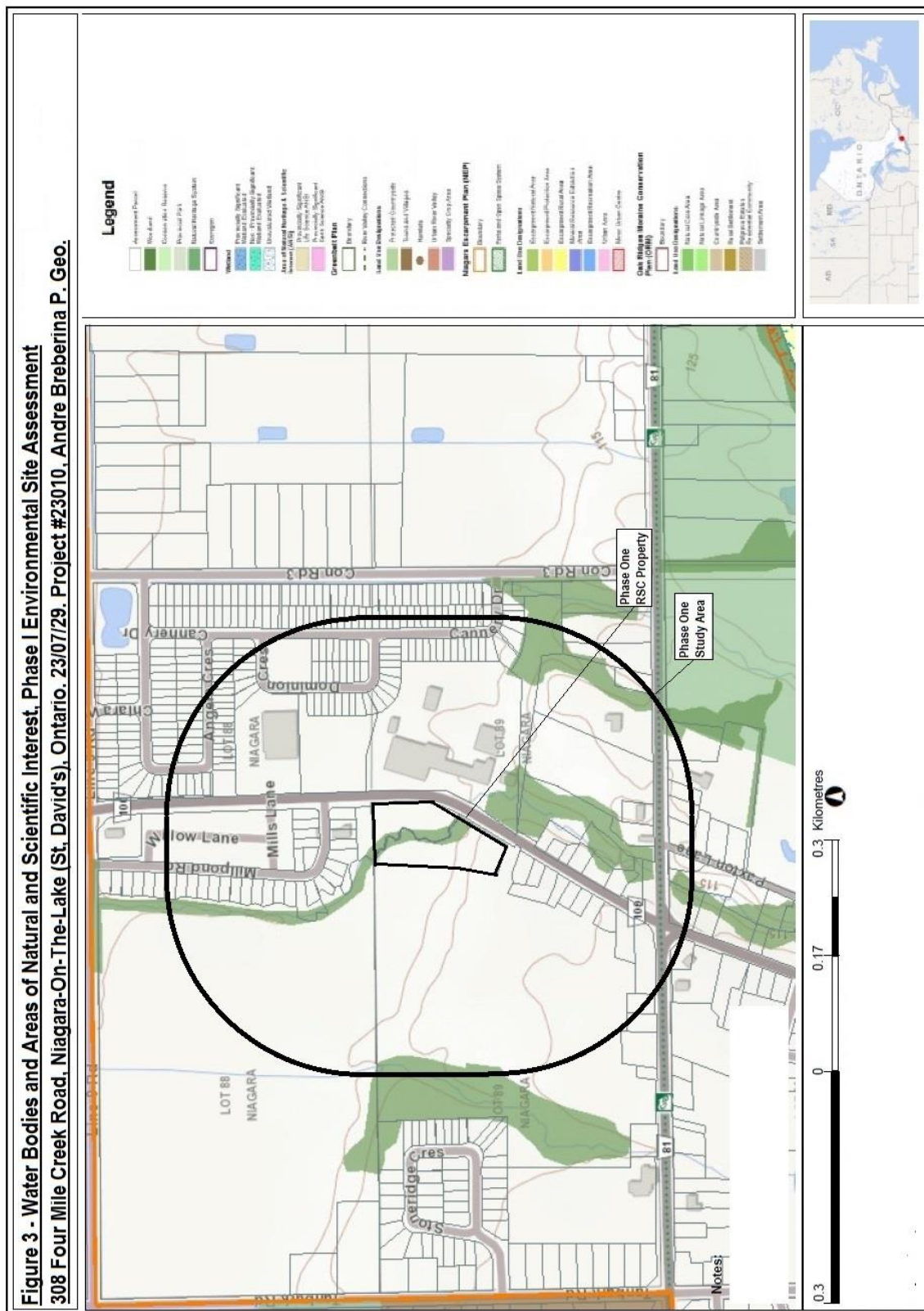
There is a power line leading to the house on the south portion of the Phase One Property. There are also underground gas, water and sanitary services to the house but the locations are unknown. Underground services to the former buildings on the northeast portion of the Phase One Property are unknown.
- (v) Hydrogeological Conditions – The 2018 Phase II ESA on the property to the north of the Phase One Property reported soil units as follows:

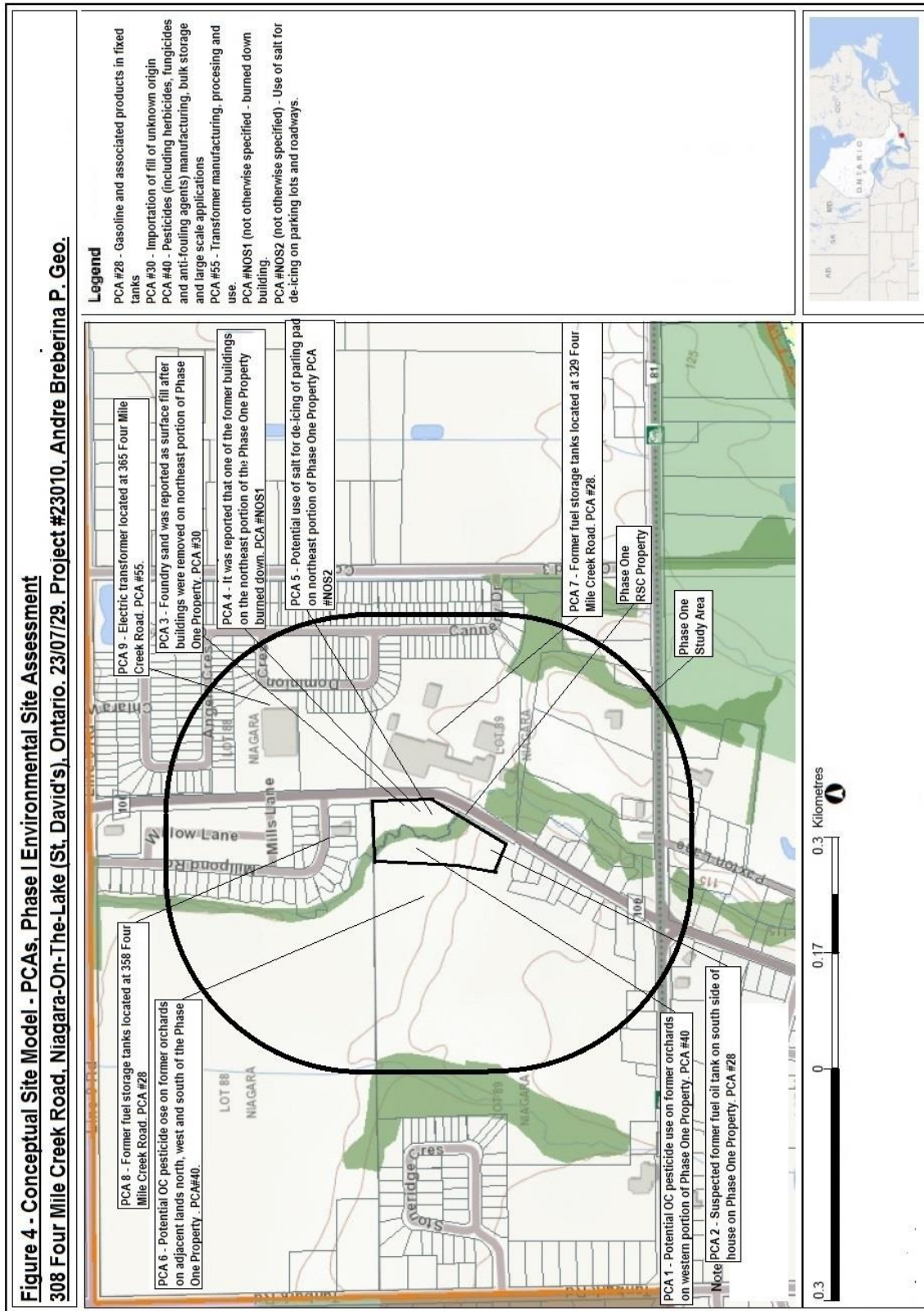
Surface- gravel with very little sand (~106.1 masl - ~105.49 masl).
Clay – silty brown clay, DTPL (~105.49 masl - ~102.45 masl).
Clay – grey/brown, APL, clay with some silt (~102.45 masl - ~100.93 masl).
Clay – grey, WTPL, clay with some silt (~100.93 masl - ~97.89 masl).
The average depth to ground water was reported to be 0.57m. The interpreted groundwater flow direction was reported to be west towards the Four Mile Creek. The horizontal hydraulic gradient were reported to as the minimum horizontal hydraulic gradient for the site is 0.0058, the maximum is 0.0145 and the average horizontal hydraulic gradient is 0.0102.
- (vi) Uncertainty or Absence of Information – The impacts from the APECs on the Phase One Property are unknown and requires assessment prior to re-developed for residential use. Locations of underground utilities are unknown.

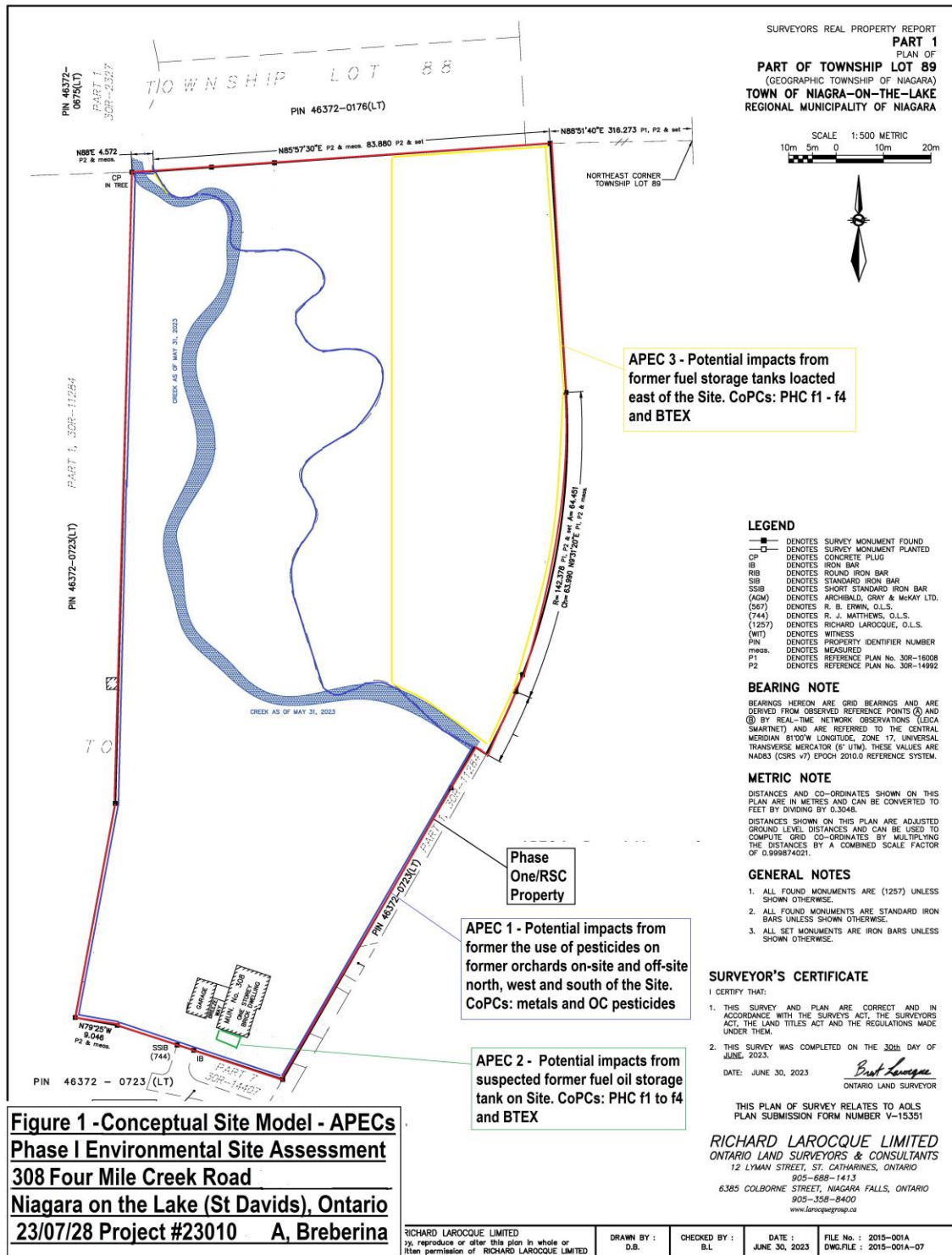
A Phase II Environmental Site Assessment to assess potential impacts from the APECs on the Phase One Property.











(iv) Deviations From Sampling And Analysis Plan

There were no deviations from the sampling plan.

(vi) Impediments

No impediments were encountered.

5.0 INVESTIGATION METHOD

(i) General

Based on the 2019 Phase I ESA, the investigation consisted of a test pit program to delineate the vertical and horizontal extent of impacted soils; a confirmatory sampling of soil program the remedial excavations; and supplemental groundwater investigation to reduce the uncertainties identified in the APECs.

The program involved: location of underground utilities marked by public utilities; advancement of boreholes; monitoring well installation; soil and groundwater sampling and analysis; and, assessment of the findings and reporting of same.

(ii) Drilling and Excavation

The drilling program involved the advancement of a three borehole to 6.04 metres below grade surface (mbgs.), fitted with a monitoring well as follows:

- BH1 was located in the west portion of the Site to assess potential impacts to the soil and groundwater from historic pesticide use (OC pesticides and metals).
- BH2 was located in the area of the former fuel tank on the south side of the house at the south end of the Site to assess of impacts to the soil and groundwater the former fuel storage to the soil and groundwater (BTEX and PHC).
- BH3 was located in the area of the Site north and east of Four Mile Creek to assess impacts to the soil and groundwater from former fuel USTs located east of the Site (BTEX and PHC).

The boreholes were advanced, and wells installed by Strata Drilling Inc., an O. Reg. 903 licensed well contractor, with a D50-T direct push drilling rig,

(iii) Soil: Sampling

Soil samples were collected with a butylate lined 1.5 m long sampling tube on continuous basis.

The core samples were placed on a table in the field and split open for inspection in the field. Cores were inspected for soil types and logged. Soils were inspected for visible signs of petroleum staining and/ or odours.

Based on field observations, one worst case sample was taken. Soil samples for PHCs in the F2 to F4 fractions and metals were collected with a stainless steel knife and placed into jars prepared by the contract laboratory with appropriate preservatives as required. Soil samples for BTEX and PHCs in the F1 fraction were collected with a disposable terracore sampler and placed into laboratory supplied vials with methanol.

The samples were placed into a clean cooler with ice-packs for direct storage and transportation to the contract laboratory under chain-of-custody documentation. Based on field observations, one worst case sample of the fill/soil from each borehole was and placed into jars and vials prepared by the contract laboratory with appropriate preservatives as required. The samples were placed into a clean cooler with ice-packs for direct storage and transportation to the contract laboratory under chain-of-custody documentation.

Geologic description of the soil profiles are provided in the finalized field logs in Appendix Aii.

(iv) Field Screening Measurements

Soil vapours of the soils core samples were field screened to aid in selection of 'worst-case' soil samples for laboratory analysis. Evidence of PHC's and tested for head space TCV concentrations using an R.K.I. Instruments EAGLE portable gas analyzer calibrated with hexane (without registering a response for methane).

Selected soil samples from each soil core were placed into plastic bags with minimum head-space and the detector probe was inserted into the bag head space for 15 seconds during which the highest reading was taken during the interval.

(v) Ground Water: Well Installation

The monitoring wells were installed by Strata Drilling Inc., an O. Reg. 903 licensed well contractor. The wells were installed in accordance with O. Reg. 903, as amended, and tagged. Upon completion, the boreholes were instrumented with a monitoring well. The wells were constructed of new 3 m long x 50 mm diameter Number 10 slot schedule 40 PVC screen with threaded flush jointed riser which remained in their sealed packing until placed into the borehole. No lubricants or adhesives were used in the well construction. The annular space around the well screen was backfilled with #3 silica sand to 0.3 m above the screen to allow for settlement and expansion of the overlying seal. Granular bentonite seal was placed in the borehole annulus from the top of the sand pack to approximately 0.15 mbg. The monitoring wells were completed with a flush mount protective metal casing cemented in place. Details of the well construction are provided in the borehole logs and the following table:

BH	Bottom of screen (mbg.)	Top of Screen (mbg.)	Top of Sand Pack (mbg)	Top of bentonite seal (mbg)	Static water level (mbg)*	Surface elevation (m)
BH/MW1	6.04	3.02	2.72	0.15	0.927	109.05
BH/MW2	6.04	3.02	2.72	0.15	5.068	118.12
BH/MW3	6.04	3.02	2.72	0.15	1.046	109.20

No ground water sampling was taken during the advancement of the boreholes.

The wells were allowed to a minimum of 24 hours prior to sampling for well development.

(vi) Ground Water: Sampling

On October 12, 2023 the site was attended to record the groundwater levels in the wells, develop and purge the monitoring wells and collect ground water samples for chemical analysis.

An electronic interface probe was used to record the depth of ground water in the monitoring wells. Indications of LNAPL were noted. The probe was decontaminated between sampling points to prevent cross contamination. Based on the depths on the water levels, casing volumes of ground water in each well were calculated.

A dedicated clear polycarbonate bailer was used to purge a minimum of three casing volumes from each well prior to sampling. Indications of the presence of any LNAPL were noted. Purged water was placed into sealed plastic pails pending the analytical results.

Ground water samples were collected into new glass bottles and vials prepared by the contract laboratory with sodium bisulphate as a preservative as required. The samples were placed into a clean cooler with ice-packs for direct storage and transportation to the contract laboratory under chain-of-custody documentation.

(vii) Sediment Sampling

No sediment sampling was undertaken as part of this investigation.

(viii) Analytical Testing

- Soil and groundwater samples from BH/MW1 were analyzed for OC pesticides and metals.
- Soil and groundwater samples from BH/MW2 were analyzed for BTEX and PHC.
- Soil and groundwater samples from BH/MW3 were analyzed for BTEX and PHC.
- One duplicate soil sample for every ten soil samples was taken for QA/QC purposes.
- One duplicate groundwater sample, was taken of groundwater samples.

Soil and groundwater samples were submitted for analysis to Paracel Laboratories Ltd. in Hamilton, Ontario.

(ix) Residue Management

Soil cuttings were placed in sealed steel drums which were removed off site during the remediation program, and purged water from the wells was placed sealed plastic pails pending the outcome of the analytical results.

(x) Elevation Surveying

Elevations were tied into the existing well elevations.

(xi) Quality Assurance and Quality Control Measures

All samples were placed into clean sample jars, bottles and or vials prepared by the contract laboratory following the laboratory protocols as follows:

- Soil samples for metals were collected from the core sample with a stainless steel knife and placed into 500 ml amber glass jars with no headspace and seal with Teflon lined lids.
- Soil samples for VOCs and PHC in the F1 fraction were collected with dedicated Terra-Core plastic samplers to collect 5 gms of soil and placed into a 40 ml. Clear glass vial with 10 ml of pre-measured methanol by the laboratory as a preservative.
- The sampling knife was decontaminated with alchonox and rinsed with distilled water between sampling events to prevent cross-contamination.
- Groundwater samples were collected with disposable bailers and decanted into containers prepared with preservatives by the laboratory.

A minimum of one field duplicate sample was taken for every ten field samples for soil and ground water during each sampling event quality control and assurance (QC/QA) purposes.

Disposable nitrile gloves were used during sampling handling. All sample containers were labelled by the contract laboratory and sample identifications and dates were placed on the label in the field at the time of sampling. The samples were placed into a clean cooler with ice-packs for direct storage and transportation to the contract laboratory under chain-of-custody documentation.

6.0 REVIEW AND EVALUATION

(i) Geology

The site is situated within the physiographic region known as the Iroquois Plain (Chapman and Putnam, 1984). The Iroquois Plain is the low land extending between Lake Ontario and the Niagara Escarpment that was inundated in late Plesitocene times by glacial Lake Iroquois. The plain is flat and is covered by lacustrine deposits of sand, silt, and clay overlying the Halton Till.

Subsurface soil conditions as described by the Quaternary Geology of Ontario Map 2556 from the Ministry of Northern Development and Mines are Glaciolacustrine deposits: silt and clay, minor sand; basin and quiet water deposits.

According to the General Physiography of the Niagara Peninsula Map adapted from Brock University Department of Geography the site is situated in a clay plain.

According to the Ontario Geological Survey 2011, bedrock geology of Ontario, bedrock is characterized as sandstone, shale, dolostone and siltstone. This area is known as the Queenston Formation.

According to Map P 2400, Ontario Geological Survey Bedrock Topography Series, Niagara and Niagara-on-the-Lake area, bedrock is found at an average of 31 metres from the surface.

Soil types encountered during the field investigation are described in the attached borehole logs included in Appendix AII.

Soils beneath a veneer of topsoil consisted of brown clay silt depths of about 3.01 mbgs followed by a grey clay with some silt to 6.04 masl. No product, film, sheen, staining or odours were noted in the sub-surface soils.

(ii) Ground Water: Elevations and Flow Direction

The depths to the ground water were as follows:

BH	Elevation of Ground Surface (m)	Elevation of Top of Pipe (m)	Approximate Depth of Well (m)	Depth to Ground Water (metres below ground surface)	Ground Water Elevation (m)*
MW-01	109.05	110.03	6.04	0.927	108.123
MW-02	118.12	118.12	6.04	5.068	113.052
BH101	109.20	110.10	0.04	1.046	108.154

Based on the ground water elevations the ground water flow direction is to the north-northwest.

No free product, film, sheen or odours were noted in any of the ground water samples or identified by the interface probe.

(iii) Soil Texture

Based on laboratory particle size analysis of soil grab sample, the soil was classified as fine to medium textured, and was used for the SCS comparison.

(iv) Soil Field Screening

No product, film, sheen, staining or odours were noted in the soils. No soil vapours were noted by the PID during the field screening of soil samples.

(v) Soil Quality

A summary of the locations, depths, and a comparison of the analytical results of other metals in the soil with the applicable SCS are presented in Table 1. None of the samples exhibited concentrations above the SCS.

A summary of the locations, depths, and a comparison of the analytical results of OC pesticides with the applicable SCS are presented in Table 2. None of the samples exhibited concentrations above the SCS.

A summary of the locations, depths, and a comparison of the analytical results of PHC and BTEX in the soil with the applicable SCS are presented in Table 3. None of the samples exhibited concentrations above the SCS.

(vi) Ground Water Quality

A summary of the locations, depths, and a comparison of the analytical results of metals hydrides in groundwater with the applicable SCS are presented in Table 4. None of the samples exhibited concentrations above the SCS.

A summary of the locations, depths, and a comparison of the analytical results of OC pesticides in groundwater with the applicable SCS are presented in Table 6. None of the samples exhibited concentrations above the SCS.

A summary of the locations, depths, and a comparison of the analytical results of BTEX and PHC in groundwater with the applicable SCS are presented in Table 6. None of the samples exhibited concentrations above the SCS.

A summary of the locations, depths, and a comparison of the analytical results of PHCs with the applicable SCS are presented in Table 6. No PHCs exceeded the SCS.

There is no evidence that the PCAs have impacted the groundwater under the Phase Two Property.

Given the analytical results of the fill and the soil, the soil is not considered to be a source of contaminant mass contributing to the perched ground water or usable aquifer.

There are no indications of the presence of light or dense non-aqueous phase liquids. A groundwater investigation was not part of this program.

(vii) Sediment Quality

Sediment was not a medium of concern and not sampled as part of the Phase II ESA.

(viii) Quality Assurance and Quality Control Programs

On October 10, one soil sample was taken from BH/MW1 for analysis of metals, hydrides and OC pesticides and one soil sample was taken from each of BH/MW2 and BH/MW3 for analysis of BTEX and PHC. One duplicate sample was taken for each set of parameters. The relative percent differences (RDFs) were within acceptable limits, or could not be calculated due to the results being less the laboratory minimum detection limit.

On October 12, 2023, one groundwater sample was taken from BH/MW1 for analysis of metals, hydrides and OC pesticides, and one duplicate sample was taken. The relative percent differences (RDFs) of some of the metals exceeded the limits. Therefore, the well was re-sampled on November 9 for analysis of metals and hydrides. The RDFs were within acceptable limits, or could not be calculated due to the results being less the laboratory minimum detection limit.

On October 12, 2023, one groundwater sample was taken from each of BH/MW2 and BH/MW3 for analysis of BTEX and PHC and one duplicate sample was taken. The relative percent differences (RDFs) were within acceptable limits, or could not be calculated due to the results being less the laboratory minimum detection limit.

All Certificates of Analysis received are pursuant to clause 47 (2) (b) of the regulation comply with subsection 47 (3).

A Certificate of Analysis has been received for each sample submitted.

All Certificates of Analysis received have been included in full and are included in Appendix (iii) in this report.

The quality control reports in both Certificates of Analysis reported that the relative percent difference (RDF) could not be calculated due to the results being less the laboratory minimum detection limit.

The quality control reports in both Certificates of Analysis reported that all test results were conducted within ALS's recommended hold times.

(ix)Phase Two Conceptual Site Model:

- i) Areas where PCAs on, or potentially affecting the phase one property has occurred – The following potentially contaminating activities were identified in the Phase One Property:

PCA #1 - The former use of the portion of the phase one property west and south of Four Mile Creek and the portion of the Phase One property along the north side east of Four Mile Creek as an orchard indicates there may have been pesticides used on the phase one property (Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications). The soil on the portion of the Phase One property along the north side east of Four Mile Creek was sampled and analyzed for OC pesticides and metals in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

PCA #2 – The potential historical presence of a former fuel oil storage tank located on the south side of house at the south portion of the property (Item #28. Gasoline and Associated Products Storage in Fixed Tanks).

PCA #3 – It was reported that after the buildings were removed on the portion of the Phase One Property north and east of the Four Mile Creek some foundry sand was placed to level parking area (Item #30 Importation of Fill Material of Unknown Quality). The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

PCA #4 – It was reported that one the buildings on the portion of the Phase One Property north and east of the Four Mile Creek burned down (Item #NOS Not Otherwise Specified). The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals and PAHs in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

PCA #5 – The portion of the Phase One Property north and east of the Four Mile Creek has historically been used as a parking pad and therefore there is potential SAR and EC impacts to the surface soil from possible de-icing activities with salt. The soil on the portion of the Phase One property north and east of Four Mile Creek was sampled and analyzed for metals and SAR and EC in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS.

Potentially contaminating activities in the phase one study area are:

PCA #6 - Former and current agriculture on properties within the study area (Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications).

PCA #7 - There were several fuel storage tanks, both aboveground and underground located on the adjacent property to the east of the phase one property, 329 Four Mile Creek Road. It seems that some tanks had been decommissioned but the details and any analytical data were not available. (Item #28. Gasoline and Associated Products Storage in Fixed Tanks).

PCA #8 - Presence of four (4) aboveground fuel storage tanks located on the portion of the property to the east of the phase one property. (Item #28. Gasoline and Associated Products Storage in Fixed Tanks). The PCA is downgradient of the Phase One Property and the property was remediated in 2019 to Table 2 SCS, upon which a RSC for residential use was filed with MECP.

PCA #9 – Electrical transformer (former PCB containing) on the adjacent property located east of the phase one property, 365 Four Mile Creek Road. Item # 55 Transformer Manufacturing, Processing and Use. However, there is no evidence to indicate that it is an area of potential environmental concern on the phase one property. Although it is within the 250-meter study area, it is approximately 190m northeast of the phase one property and the inferred groundwater flow is northerly away from the phase one property.

(vii) Areas of Potential Environment Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA	Contaminants of Concern	Media Potentially Impacted
APEC #1 Former orchard on the phase one property	The portion of the Phase One Property west and south of Four Mile Creek	40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-site and off-site	OC pesticides, metals and hydrides	Soil
APEC #2 Former fuel storage tank	Located south of the south wall of the house at the south end of the Phase One Property.	. Item #28. Gasoline and Associated Products Storage in Fixed Tanks.	On-Site	BTEX and PHC	Soil and groundwater
APEC #3 Former fuel storage tanks	The portion of the Phase One Property west and south of Four Mile Creek	. Item #28. Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	BTEX and PHC	Soil and groundwater

(viii) Rationale for APECs :

APEC 1 = The former use of the portion of the phase one property west and south of Four Mile Creek and the portion of the Phase One property along the north side east of Four Mile Creek as orchards indicates there may have been pesticides used on the phase one property (Item #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications). There has also been historical use of adjacent properties to the south, west and north of the Phase One Property, and there is the potential of overspray pesticides onto the surface soils of the Phase One Property. The soil on the portion of the Phase One property along the north side east of Four Mile Creek was sampled and analyzed for OC pesticides and metals in 2021 and the results were found to be within the O. Reg 153/04 Table 8 SCS Pesticides were suspect of being used on the Phase One Property when it was used as fruit storage area.

APEC 2 – The potential historical presence of a former fuel oil storage tank located on the south side of house at the south portion of the property. There is potential contamination to the soil and groundwater of fuel oil from leakage and spillage around the UST.

APEC 3 – There were several fuel storage tanks, both aboveground and underground located on the adjacent property to the east of the phase one property, 329 Four Mile Creek Road, which is upgradient of the Phase One Property. It seems that some tanks had been decommissioned but the details and any analytical data were not available. There is potential contamination to the soil and groundwater of fuel oil from leakage and spillage around the USTs which may have migrated onto the northeast portion of the Phase One Property.

- ii) Underground Utilities – No underground utilities were identified in the APECs, and therefore the presence of below ground utilities is not expected to promote contaminant distribution or transport.

2. The following is a description of the physical setting of the phase two property and the following figures.

- (i) Stratigraphy – The native soils encountered during borehole drilling generally consisted of brown to grey clay silt with traces of fine gravel to depth. The encountered surficial geology was found to somewhat correspond to the general geology of the area, which is characterized as Lake Iroquois which is the low land extending between Lake Ontario and the Niagara Escarpment that was inundated in late Pleistocene times by glacial Lake Iroquois. The plain is flat and is covered by Glaciolacustrine deposits: silt and clay, minor sand; basin and quiet water deposits.

- (ii) Hydrogeological Conditions – The clay overburden has a typical hydraulic conductivity range of 10⁻⁷ to 10⁻¹⁰ cm/s. Based on the elevation and static groundwater level data, the groundwater flow direction on-site was determined to be northwest. The horizontal hydraulic gradient was calculated based on the groundwater levels collected during this investigation from monitoring wells on July 26, 2020. The average depth to ground water was reported to be 2.347 m. The interpreted groundwater flow direction was reported to be northwest. The horizontal hydraulic gradient were reported to as the minimum horizontal hydraulic gradient for the site is 0.0004, the maximum is 0.0734 and the average horizontal hydraulic gradient is 0.0353. The vertical hydraulic gradients were not calculated because there was no contamination greater than the site condition standard.
- (iii) Depth to Bedrock –According to Map P 2400, Ontario Geological Survey Bedrock Topography Series, Niagara and Niagara-on-the-Lake area, bedrock is found at an average of 31 metres from the surface. According to the Ontario Geological Survey 2011, bedrock geology of Ontario, bedrock is characterized as sandstone, shale, dolostone and siltstone. This area is known as the Queenston Formation.
- (iv) Depth to Water Table – Static groundwater levels ranged from 0.927 m below grade surface (bgs) (108.123 m above sea level (masl)) in BH/MW1 to 5.068 mbgs (113.052 masl) in MW/BH2. The vertical hydraulic gradients were not calculated because there was no contamination greater than the site condition standard.
- (v) Any respect in which section 35, 41 or 43.1 of the regulation applies to the property – According to the MECP Well Records and the ERIS report there are eighteen (18) water wells located within a 300-metre radius of the phase one property. Three (3) of these wells have been abandoned, four (4) are water supply wells, two (2) are observation wells and nine (9) are described as test holes. According to these well records the average depth to bedrock is 30.5 metres and the average static water level is approximately 2.7 metres below surface. Therefore, the Site is being treated as a potable groundwater condition. The property is not within an area of natural significance. The property does not include and is not adjacent to an area of natural significance or part of such an area. The property does not include land that is within 30 meters of an area of natural significance or part of such an area. The soil at the property has a pH value for surface soil that is more than 5 and less than 9 and for subsurface soil it is more than 5 and less than 11. The qualified person does not believe it is appropriate to apply section 41 of the Regulation to the property. The Site is not a shallow soil property and therefore Section 43.1 (a) of the Regulation does not apply to the property. Four Mile Creek

runs through the property and therefore Section 43.1 (b) of the Regulation does apply to the property.

- (vi) Areas where soil has been brought from another property and placed on, in or under the phase two property – Approximately 2040 m³ of sub-surface soil from the excavation for a church foundation in a former agricultural area located on the north side of York Road known as Parcel 181-1, Part Township Lot 181, Niagara On The Lake, were submitted for analysis of metals and all concentrations of all parameters of all samples were found to be with the Table 2 SCS. The fill was placed in the remediation excavations: Areas A to H, as shown in Figure 6.
- (vii) Approximate locations, if known, of any proposed buildings and other structures. – There are no buildings on the Site, and there are no known locations of any proposed buildings.

3. Contaminants discovered at the phase two property greater than the applicable site condition standards.

No contaminants of concern were identified in any of the soil or groundwater samples taken in the Phase II ESAs.

All concentrations of contaminants are within the Table 2 SCS and there is no further risk of contaminant migration, vapour intrusion, or risk to human and ecological receptors for the intended residential land use.

Description of Figures

Figure 1 – Survey of the RSC/P1/P2 property.

Figure 2 – Phase Two Study Area Buildings, Structures and Adjacent Property Uses

Figure 3 – ANSIs and water bodies in the study area

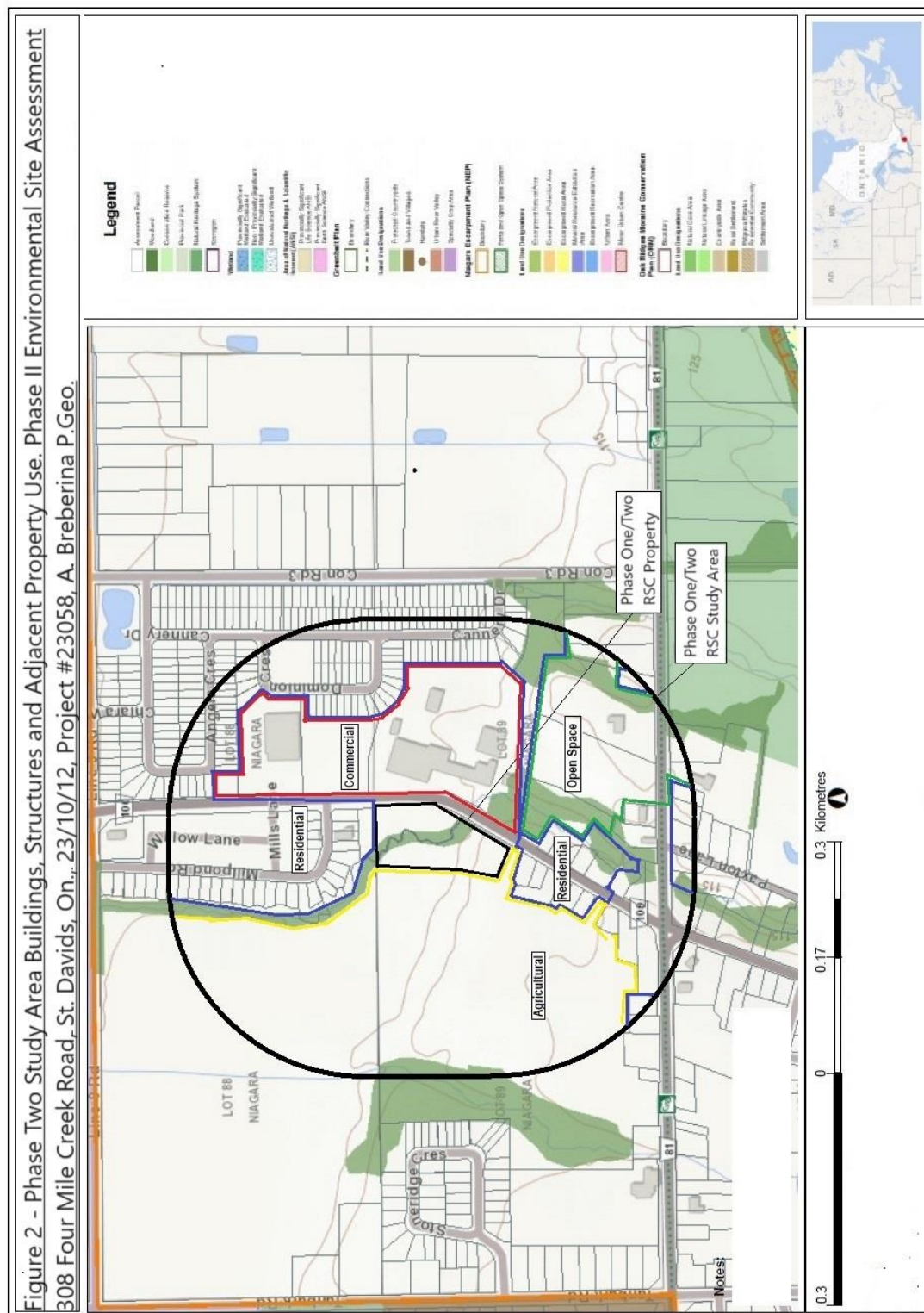
Figure 4 – PCAs

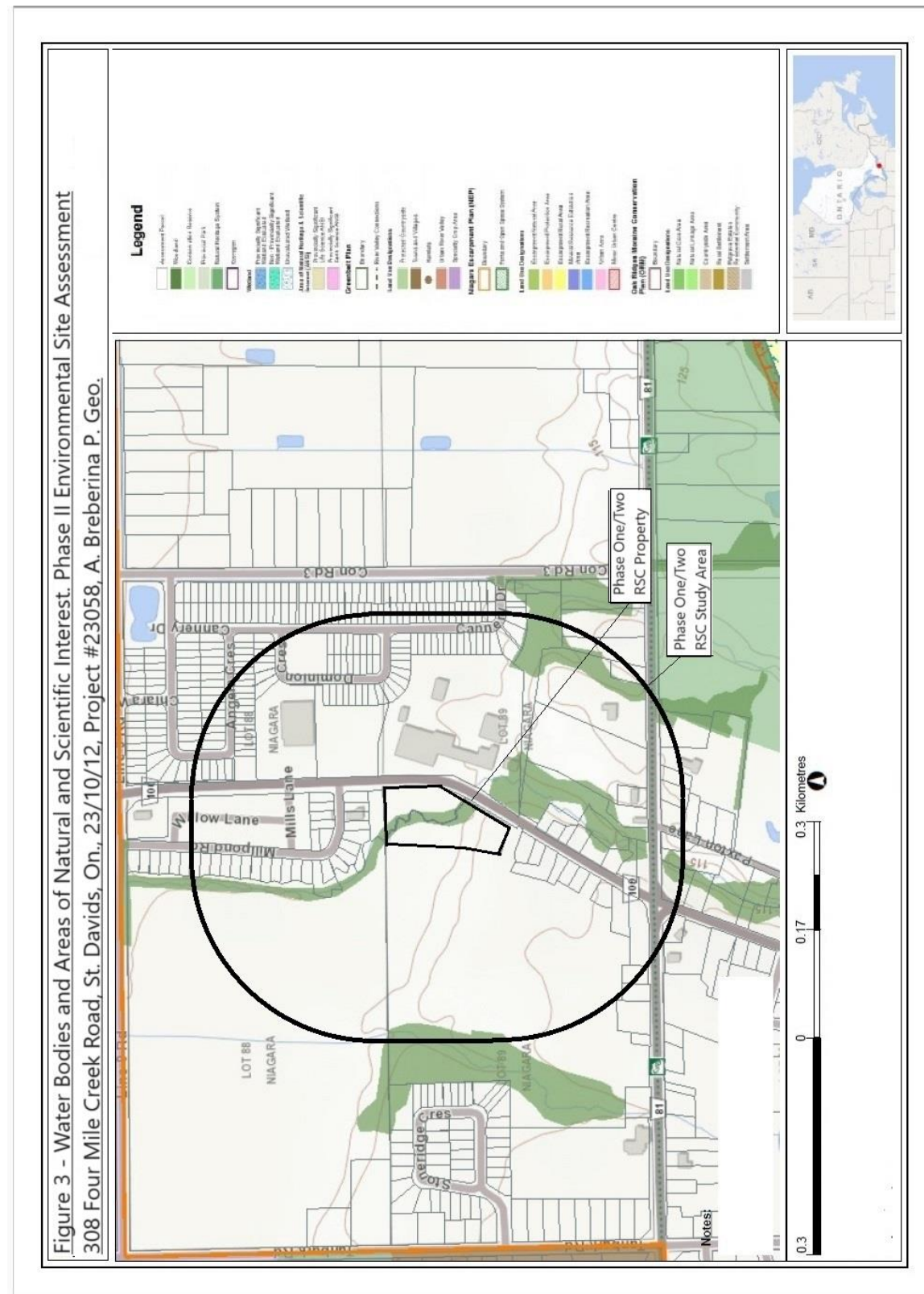
Figure 5 – APECs

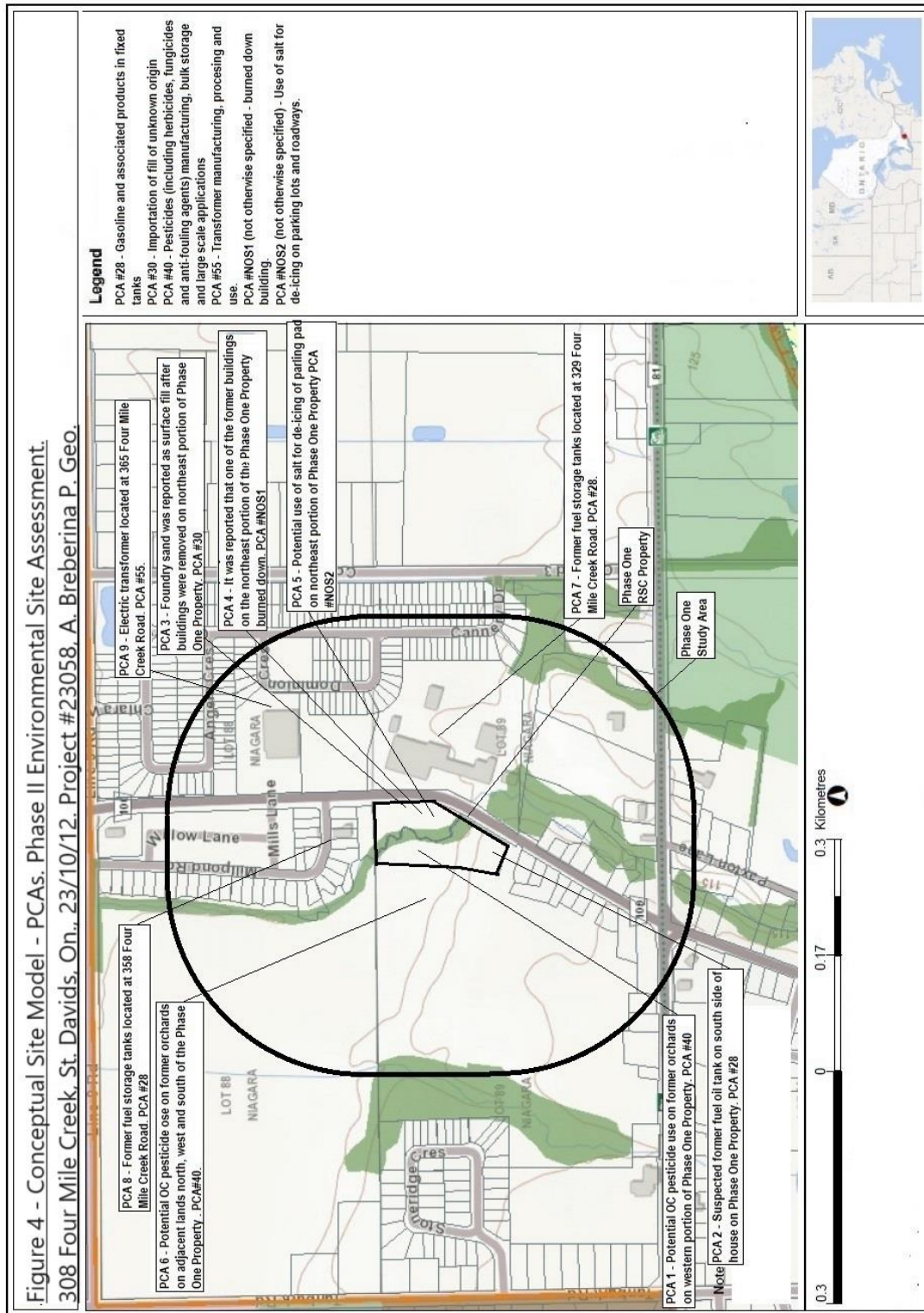
Figure 6 – Interpreted Contours of Ground Water Elevations

Figure 7 – Cross-Section AA

Figure 8 – Cross-Section BB







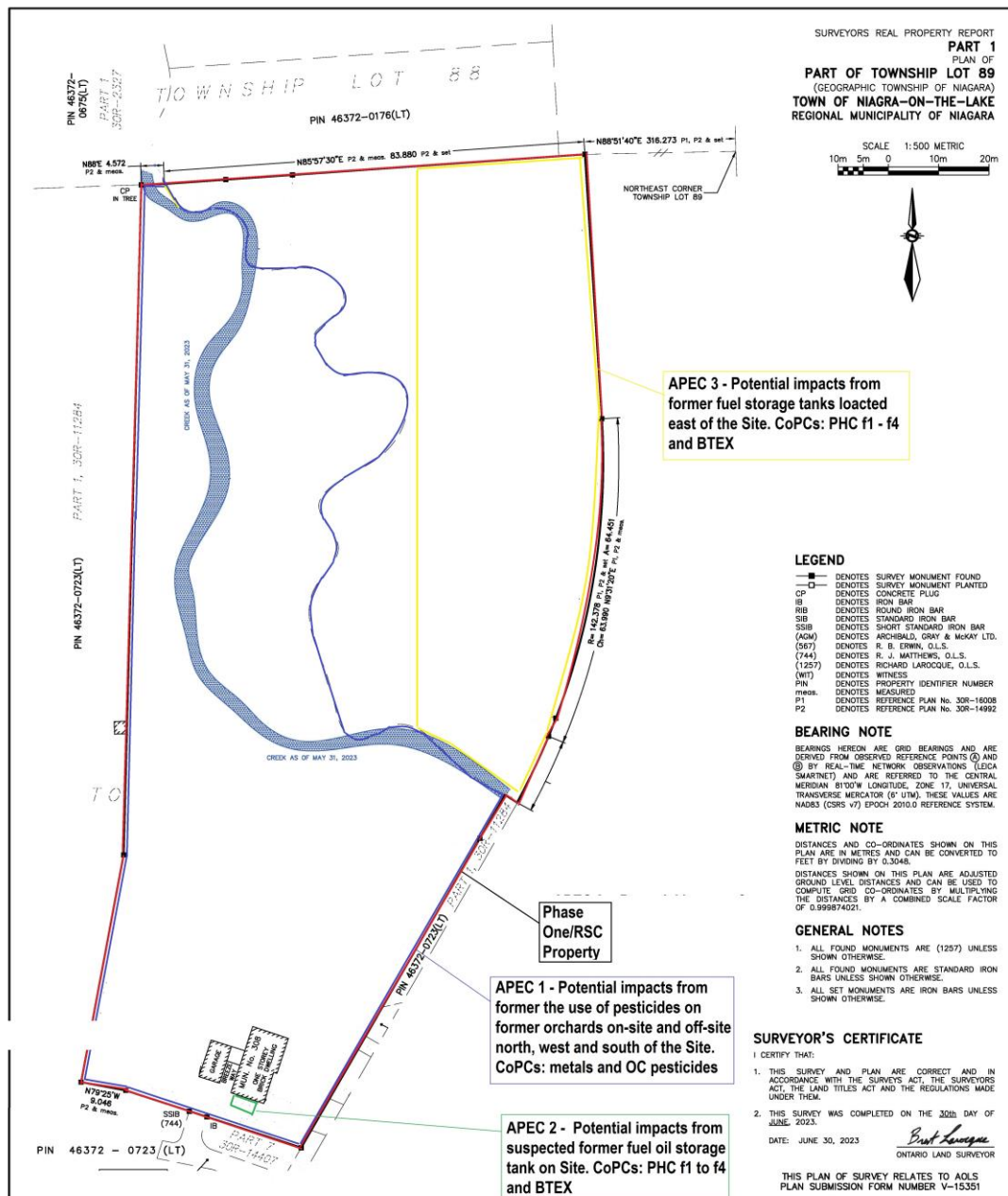


Figure 5 - Conceptual Site Model - APECs
Phase II Environmental Site Assessment
308 Four Mile Creek Road, St. Davids, On.
23/10/12, Proj. 23058, A. Breberina P.Geo.

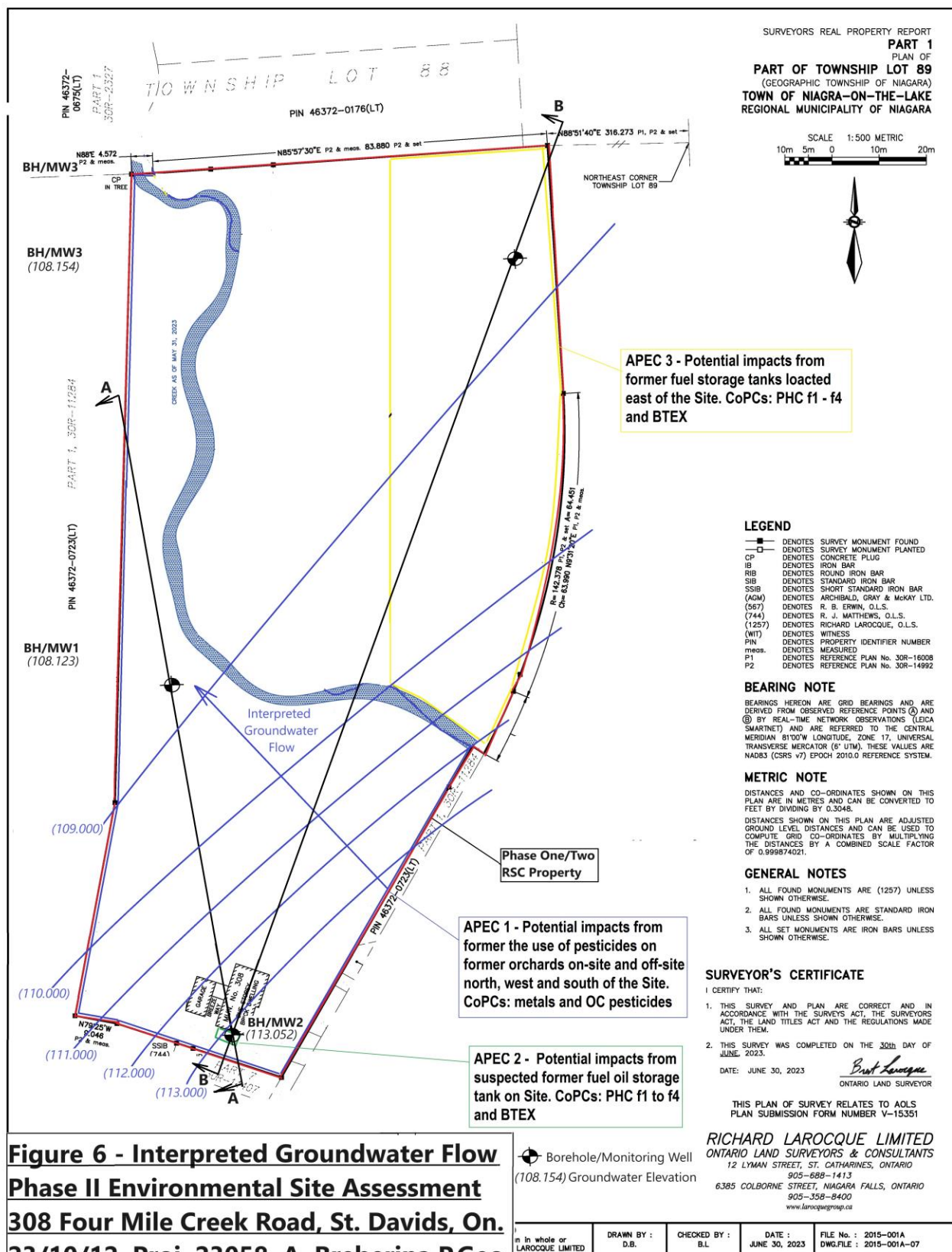


Figure 7 - Cross Section AA, Phase II Environmental Site Assessment
308 Four Mile Creek Road, St. Davids, On., 23/10/12, Project #23058, A. Breberina P. Geo.

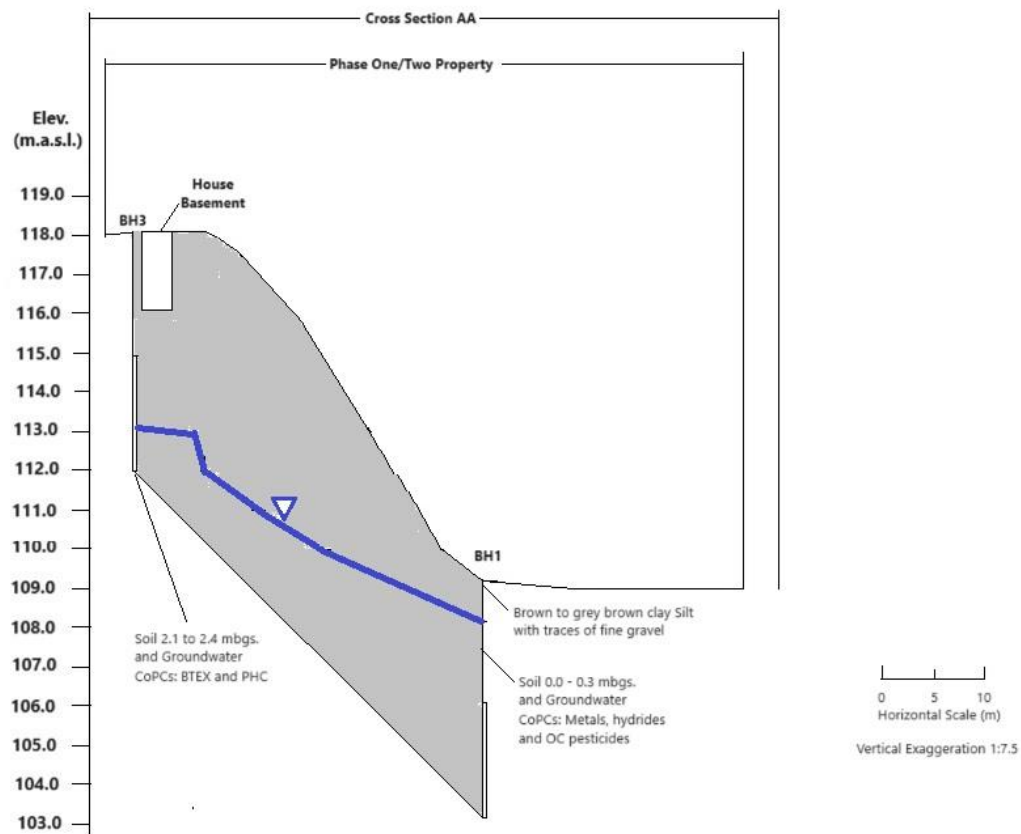
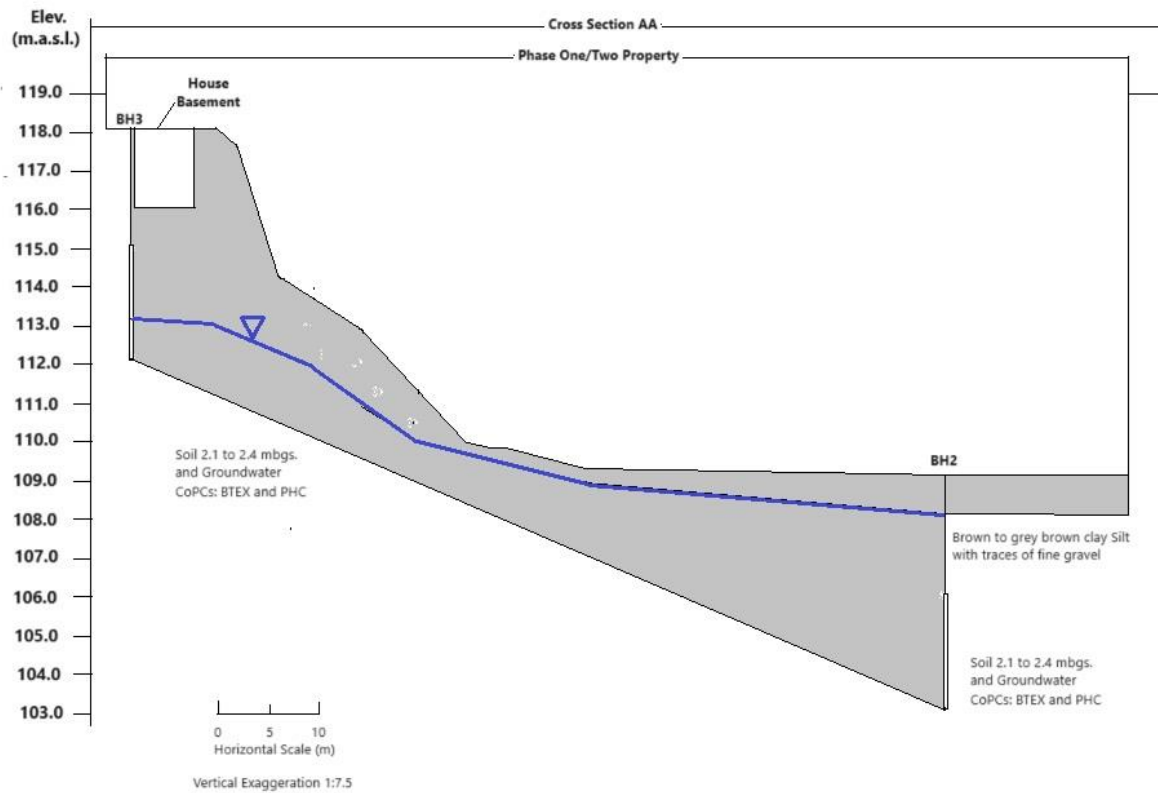


Figure 8 - Cross Section BB, Phase II Environmental Site Assessment
308 Four Mile Creek Road, St. Davids, On., 23/10/12, Project #23058, A. Breberina P. Geo.



7.0 CONCLUSIONS

At the request of Mr. Rainer Hummel of Sleek Developments Inc. (the Client), a Phase II Environmental Site Assessment was conducted of a site (the 'Site') located at 308 Four Mile Creek Road (West Portion), Niagara on the Lake (St. Davids), Ontario.

The assessment was conducted in accordance with the requirements set out in Schedule D Phase Two Environmental Site Assessments of the Ministry of Environment's O. Reg 511/09. The procedure involved a records review, site reconnaissance, and interviews.

Based on the 2023 Phase I ESA, the investigation consisted of a 3 boreholes instrumented with groundwater monitoring wells, soils and groundwater sampling and analytical program to reduce the uncertainties identified in the APECs, and assessment and reporting of the findings.

Based on the site characteristics, the Site Condition Standard (SCS) for the phase two property that has been selected in accordance with the O. Reg 153/04, as amended, are the generic standards for the residential/parkland/institutional land use in a potable groundwater condition for fine to medium textured soils. (Table 8 – full depth clean-up).

The native soils encountered during borehole drilling generally consisted of brown to grey clay silt with traces of fine gravel to depth. No product, film, sheen, staining or odours were noted in the sub-surface soils. Grain size analysis of the soil determined the soil was fine to medium textured.

Static groundwater levels ranged from 0.927 m below grade surface (bgs) (108.123 m above sea level (masl)) in BH/MW1 to 5.068 mbgs (113.052 masl) in MW/BH2. The vertical hydraulic gradients were not calculated because there was no contamination greater than the site condition standard. Based on the ground water elevations the ground water flow direction is to the north-northwest. No free product, film, sheen or odours were noted in any of the ground water samples or identified by the interface probe.

There were no soil samples that exceeded the SCS for metals, OC pesticides, BTEX or PHC. There is no evidence that the PCAs have impacted the groundwater under the Phase Two Property.

There were no groundwater samples that exceeded the SCS for metals, OC pesticides, BTEX or PHC. There is no evidence that the PCAs have impacted the groundwater under the Phase Two Property.

The relative percent difference (RDF) of the quality control samples were within acceptable limits or could not be calculated due to the results being less the laboratory minimum detection limit.

CONFIDENTIAL

All contaminants of concern for soil and groundwater on the Phase Two Property now meet the generic standards for the residential/parkland/institutional land use in a potable groundwater situation for fine to medium textured soils. (Table 8 – full depth clean-up). Therefore, no further work is warranted and a Record of Site Condition may be filed.

We trust that this report will accommodate your requirements. If you have any questions or comments, please contact the undersigned.

The gathering of information, evaluation of the information and conclusions and recommendations made in this Phase II ESA have conducted by, or supervised by, the undersigned QP.



Andre Breberina P.Geo

8.0 REFERENCES

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OMOE, July 1, 2011, Ontario Regulation 153/04 as amended by Ontario Regulation 511/09. Environmental Protection Act, R.S.O. 1990, Part XV.1

9.0 FIGURES AND TABLES

(a) Tables

(i) Monitoring Well Installation

BH	Bottom of screen (mbg.)	Top of Screen (mbg.)	Top of Sand Pack (mbg)	Top of bentonite seal (mbg)	Static water level (mbg)*	Surface elevation (m)
BH/MW1	6.04	3.02	2.72	0.15	0.927	109.05
BH/MW2	6.04	3.02	2.72	0.15	5.068	118.12
BH/MW3	6.04	3.02	2.72	0.15	1.046	109.20

(ii) Ground Water Elevations

BH	Elevation of Ground Surface (m)	Elevation of Top of Pipe (m)	Approximate Depth of Well (m)	Depth to Ground Water (metres below ground surface)	Ground Water Elevation (m)*
BH/MW1	109.05	110.03	6.04	0.927	108.123
BH/MW2	118.12	118.12	6.04	5.068	113.052
BH/MW3	109.20	110.10	0.04	1.046	108.154

(v) LNAPLs and DNAPLs

No LNAPLs or DNAPLs were identified.

(vi) Soil Data

Table 1 – Comparison of Results of Metals and General Chemistry for Soil with MOE Generic Site Condition Standards for Residential/Parkland/Institutional Use within 30 m of a Water Body in Potable Groundwater Situation (Table 8)

PARAMETERS	A1051 BH1 CS1 0.3 mbgs 23/10/10 2341269-01	A1052 Dup. of A1051 23/10/10 2341269-02	A1053 BH2 CS 2 2.4 mbgs. 23/10/10 2341269-03	A1054 Dup. of A1053 23/10/10 2341269-04	A1055 BH3 CS2 2.4 mbgs. 23/10/10 2341269-05	A1056 BH3 CS2 2.2 mbgs. 23/10/10 2341269-06	TABLE 8
Antimony	ND (1.0)	ND (1.0)	NT	NT	NT	NT	1.3
Arsenic	5.6	3.8	NT	NT	NT	NT	16.0
Barium	145	87.8	NT	NT	NT	NT	220.0
Beryllium	1.0	0.6	NT	NT	NT	NT	2.5
Boron	11.5	6.2	NT	NT	NT	NT	36
Cadmium	ND (0.5)	ND (0.5)	NT	NT	NT	NT	1.2
Chromium	32.6	20.7	NT	NT	NT	NT	0.66
Cobalt	13.2	8.9	NT	NT	NT	NT	22.0
Copper	30.8	17.5	NT	NT	NT	NT	92.0
Lead	10.2	6.7	NT	NT	NT	NT	0.27
Molybdenum	1.5	ND (1.0)	NT	NT	NT	NT	2.0
Nickel	28.5	18.3	NT	NT	NT	NT	82.0
Selenium	1.2	ND (1.0)	NT	NT	NT	NT	1.5
Silver	ND (0.3)	ND (0.3)	NT	NT	NT	NT	0.5
Thallium	ND (1.0)	ND (1.0)	NT	NT	NT	NT	1.0
Uranium	ND (1.0)	ND (1.0)	NT	NT	NT	NT	2.5
Vanadium	41.6	29.2	NT	NT	NT	NT	86.0
Zinc	63.5	45.4	NT	NT	NT	NT	290.0

All Values in ug/g. NV – No Value N/A – Not Applicable NT Not taken

() – SCS value applies to fine to medium textured soils (soils with more than 70% particles less than 50 u diameter)

BOLD – exceeds a Table 8 SCS for a full depth clean-up

Table 2 – Comparison of Results of OC Pesticides Analysis of Soil Samples with MOE Guidelines' Generic Site Condition Standards for Residential/Parkland/Institutional Use within 30 m of a Water Body in Potable Groundwater Situation (Table 8)

Parameter	Sample# Depth (mbgs) Date	A1051 BH1 CS1 0.3 mbgs 23/10/10 2341269-01	A1052 Dup. of A1051 23/10/10 2341269-02	A1053 BH2 CS 2 2.4 mbgs. 23/10/10 2341269-03	A1054 Dup. of A1053 23/10/10 2341269-04	A1055 BH3 CS2 2.4 mbgs. 23/10/10 2341269-05	A1056 BH3 CS2 2.2 mbgs. 23/10/10 2341269-06	TABLE 8
Aldrin		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.05
DDD		ND (0.02)	ND (0.02)	NT	NT	NT	NT	0.05
DDE		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.05
DDT		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.078
Dieldrin		ND (0.02)	ND (0.02)	NT	NT	NT	NT	0.05
Endosulfan I & II		ND (0.02)	ND (0.02)	NT	NT	NT	NT	0.04
Endrin		ND (0.02)	ND (0.02)	NT	NT	NT	NT	0.04
Heptachlor		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.05
Heptachlor Epoxide		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.05
Heptachlorobenzene		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.02
Heptachlorobutadiene		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.01
Heptachloroethane		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.01
Methoxychlor		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.05
Chlordane		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.05

All Values in ug/g. NV – No Value N/A – Not Applicable NT Not taken

() – SCS value applies to fine to medium textured soils (soils with more than 70% particles less than 50 u diameter)

BOLD – exceeds a Table 8 SCS for a full depth clean-up

Table 3 - Comparison of Results of Metals and General Chemistry for Soil with MOE Generic Site Condition Standards for Residential/Parkland/Institutional Use within 30 m of a Water Body in Potable Groundwater Situation (Table 8)

PARAMETER	SAMPLE Depth (m) Date	A1051 BH1 CS1 0.3 mbgs 23/10/10 2341269- 01	A1052 Dup. of A1051 23/10/10 2341269- 02	A1053 BH2 CS 2 2.4 mbgs. 23/10/10 2341269- 03	A1054 Dup. of A1053 23/10/10 2341269- 04	A1055 BH3 CS2 2.4 mbgs. 23/10/10 2341269- 05	A1056 BH3 CS2 2.2 mbgs. 23/10/10 2341269- 06	TABLE 8
Benzene		NT	NT	ND (0.02)	ND (0.02)	ND (0.02)	NT	0.17 (0.21)
Toluene		NT	NT	ND (0.05)	ND (0.05)	ND (0.05)	NT	2.3 (6.0)
Ethylbenzene		NT	NT	ND (0.05)	ND (0.05)	ND (0.05)	NT	1.1 (1.6)
Total Xylene		NT	NT	ND (0.05)	ND (0.05)	ND (0.05)	NT	3.1 (25)
Petroleum Hydrocarbons F1 (C6-C10)		NT	NT	ND (7)	ND (7)	ND (7)	NT	55 (65)
Petroleum Hydrocarbons F2 (>C10-C16)		NT	NT	ND (4)	ND (4)	ND (4)	NT	98 (150)
Petroleum Hydrocarbons F3 (>C16-C34)		NT	NT	ND (8)	ND (8)	ND (8)	NT	300 (1300)
Petroleum Hydrocarbons F4 (>C34)		NT	NT	ND (6)	ND (6)	ND (6)	NT	2800 (5600)

All Values in ug/g. NV – No Value N/A – Not Applicable NT Not taken

() – SCS value applies to fine to medium textured soils (soils with more than 70% particles less than 50 u diameter)

BOLD – exceeds a Table 8 SCS for a full depth clean-up

(vii) Ground Water Data

Table 4 – Comparison of Results of ICP Metals Analysis of Groundwater Samples with MOE Site Condition Standards for Residential/Parkland/Institutional Use within 30 m of a Water Body in Potable Groundwater Situation (Table 8)

Parameter	Sample Date	A1057 BH1 23/10/12 2341272-01	A1058 Dup. of A1057 2341272-02	A1059 BH 2 23/10/12 2341272-03	A1060 Dup. of A1059 2341272-04	A1061 BH3 23/10/12 2341272-05	Field Blank	TABLE 8
Antimony		ND (0.5)	ND (0.5)	NT	NT	NT	NT	6
Arsenic		2.9	1.2	NT	NT	NT	NT	25
Barium		25.3	40.6	NT	NT	NT	NT	1000
Beryllium		ND (0.5)	ND (0.5)	NT	NT	NT	NT	4
Boron		338	329	NT	NT	NT	NT	5000
Cadmium		ND (0.2)	ND (0.2)	NT	NT	NT	NT	2.1
Chromium		ND (1.0)	ND (1.0)	NT	NT	NT	NT	50
Cobalt		ND (0.5)	ND (0.5)	NT	NT	NT	NT	3.8
Copper		2.3	2.2	NT	NT	NT	NT	69
Lead		ND (0.2)	ND (0.2)	NT	NT	NT	NT	10
Molybdenum		7.9	8.9	NT	NT	NT	NT	70
Nickel		ND (1.0)	ND (1.0)	NT	NT	NT	NT	100
Selenium		ND (1.0)	ND (1.0)	NT	NT	NT	NT	10
Silver		ND (0.2)	ND (0.2)	NT	NT	NT	NT	1.2
Sodium		76700	61300	NT	NT	NT	NT	490000
Thallium		ND (0.5)	ND (0.5)	NT	NT	NT	NT	2
Uranium		5.5	4.2	NT	NT	NT	NT	20
Vanadium		36.1	63.1	NT	NT	NT	NT	6.2
Zinc		ND (5.0)	ND (5.0)	NT	NT	NT	NT	890

Parameter	Sample Date	Trip Blank	A1060A BH 1 23/11/09 2345432-01	A1061A Dup. of A1060A 2345432-02				TABLE 8
Antimony		NT	ND (0.5)	ND (0.5)				6
Arsenic		NT	ND (1.0)	ND (1.0)				25
Barium		NT	30.3	36.6				1000
Beryllium		NT	ND (0.5)	ND (0.5)				4
Boron		NT	235	314				5000
Cadmium		NT	ND (0.2)	ND (0.2)				2.1
Chromium		NT	ND (1.0)	ND (1.0)				50
Cobalt		NT	ND (0.5)	ND (0.5)				3.8
Copper		NT	2.8	3.7				69
Lead		NT	ND (0.2)	ND (0.2)				10
Molybdenum		NT	5.1	6.1				70
Nickel		NT	1.2	1.4				100
Selenium		NT	1.5	1.9				10
Silver		NT	ND (0.2)	ND (0.2)				1.2
Sodium		NT	95800	122000				490000
Thallium		NT	ND (0.5)	ND (0.5)				2
Uranium		NT	6.3	9.0				20
Vanadium		NT	1.2	1.3				6.2
Zinc		NT	55.7	35.9				890

All Values in ug/g. NV – No Value N/A – Not Applicable NT – Not Taken

() – SCS value applies to fine to medium textured soils (soils with more than 70% particles less than 50 u diameter)

Bold – exceeds a Table 8 SCS for a full depth clean-up

Table 5 – Comparison of Results of OC Pesticides Analysis of Groundwater Samples with MOE Generic Site Condition Standards for Residential/Parkland/Institutional Use within 30 m of a Water Body in Potable Groundwater Situation (Table 8)

Parameter	Sample# Depth (mbgs) Date	A1057 BH1 23/10/12 2341272-01	A1058 Dup. of A1057 2341272-02	A1059 BH 2 23/10/12 2341272-03	A1060 Dup. of A1059 2341272-04	A1061 BH3 23/10/12 2341272-05	Field Blank	TABLE 8
Aldrin		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.35
DDD		ND (0.01)	ND (0.01)	NT	NT	NT	NT	1.8
DDE		ND (0.01)	ND (0.01)	NT	NT	NT	NT	10
DDT		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.05
Dieldrin		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.35
Endosulfan I & II		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.56
Endrin		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.36
Heptachlor		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.038
Heptachlor Epoxide		ND (0.01)	ND (0.01)	NT	NT	NT	NT	1.0
Heptachlorobenzene		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.44
Heptachlorobutadiene		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.95
Heptachloroethane		ND (0.01)	ND (0.01)	NT	NT	NT	NT	2.1
Methoxychlor		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.30
Chlordane		ND (0.01)	ND (0.01)	NT	NT	NT	NT	0.06

All Values in ug/g. NV – No Value N/A – Not Applicable NT Not taken

() – SCS value applies to fine to medium textured soils (soils with more than 70% particles less than 50 u diameter)

BOLD – exceeds a Table 8 SCS for a full depth clean-up

Table 6 - Comparison of BTEX and PHC Water Results MOE Generic Standards for Soils for Industrial/Commercial/Community Land Use in a Non-Potable Groundwater Situation

PARAMETER	SAMPLE Date	A1057 BH1 23/10/12 2341272-01	A1058 Dup. of A1057 2341272-02	A1059 BH 2 23/10/12 2341272-03	A1060 Dup. of A1059 2341272-04	A1061 BH3 23/10/12 2341272-05	TABLE 8
Benzene		NT	NT	ND (0.5)	ND (0.5)	ND (0.5)	5
Toluene		NT	NT	ND (0.5)	ND (0.5)	ND (0.5)	22
Ethylbenzene		NT	NT	ND (0.5)	ND (0.5)	ND (0.5)	2.4
Total Xylene		NT	NT	ND (0.5)	ND (0.5)	ND (0.5)	300
Petroleum Hydrocarbons F1 (C6-C10)		NT	NT	ND (25)	ND (25)	ND (25)	420
Petroleum Hydrocarbons F2 (>C10-C16)		NT	NT	ND (100)	ND (100)	ND (100)	150
Petroleum Hydrocarbons F3 (>C16-C34)		NT	NT	ND (100)	ND (100)	ND (100)	500
Petroleum Hydrocarbons F4 (>C34)		NT	NT	ND (100)	ND (100)	ND (100)	500

PARAMETER	SAMPLE Date	Field Blank	Trip Blank	A1060A BH 1 23/11/09 2345432-01	A1061A Dup. of A1060A 2345432-02		TABLE 8
Benzene		ND (0.5)	ND (0.5)	NT	NT		5
Toluene		ND (0.5)	ND (0.5)	NT	NT		22
Ethylbenzene		ND (0.5)	ND (0.5)	NT	NT		2.4
Total Xylene		ND (0.5)	ND (0.5)	NT	NT		300
Petroleum Hydrocarbons F1 (C6-C10)		NT	NT	NT	NT		420
Petroleum Hydrocarbons F2 (>C10-C16)		NT	NT	NT	NT		150
Petroleum Hydrocarbons F3 (>C16-C34)		NT	NT	NT	NT		500
Petroleum Hydrocarbons F4 (>C34)		NT	NT	NT	NT		500

All Values in ug/g

() - Criterion value applies to fine to medium textured soils (soils with more than 70% particles less than 50 u diameter)

BOLD – exceeds a Table 2 Standard

(viii) Sediment Data

No sediment sampling conducted

(ix) Maximum Concentrations

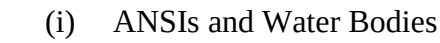
Table 7 – Maximum Concentrations of each Contaminant in Soil as of the Certification Date.

Contaminant	Max. Conc.	Sample #	Location	Date	Depth (mbg.)
<i>Metals</i>					
Antimony	ND (1.0)	A1051	BH1	23/10/10	0.0 – 0.3
Arsenic	5.6	A1051	BH1	23/10/10	0.0 – 0.3
Barium	145	A1051	BH1	23/10/10	0.0 – 0.3
Beryllium	1.0	A1051	BH1	23/10/10	0.0 – 0.3
Boron	11.5	A1051	BH1	23/10/10	0.0 – 0.3
Cadmium	ND (0.5)	A1051	BH1	23/10/10	0.0 – 0.3
Chromium	32.6	A1051	BH1	23/10/10	0.0 – 0.3
Cobalt	13.2	A1051	BH1	23/10/10	0.0 – 0.3
Copper	30.8	A1051	BH1	23/10/10	0.0 – 0.3
Lead	10.2	A1051	BH1	23/10/10	0.0 – 0.3
Molybdenum	1.5	A1051	BH1	23/10/10	0.0 – 0.3
Nickel	28.5	A1051	BH1	23/10/10	0.0 – 0.3
Selenium	1.2	A1051	BH1	23/10/10	0.0 – 0.3
Silver	ND (0.3)	A1051	BH1	23/10/10	0.0 – 0.3
Thallium	ND (1.0)	A1051	BH1	23/10/10	0.0 – 0.3
Uranium	ND (1.0)	A1051	BH1	23/10/10	0.0 – 0.3
Vanadium	41.6	A1051	BH1	23/10/10	0.0 – 0.3
Zinc	63.5	A1051	BH1	23/10/10	0.0 – 0.3
<i>VOCs 2</i>					
Benzene	ND (0.02)	A1053/A1055	BH2 & 3	23/10/10	2.1 – 2.4
Toluene	ND (0.05)	A1053/A1055	BH2 & 3	23/10/10	2.1 – 2.4
Ethyl Benzene	ND (0.05)	A1053/A1055	BH2 & 3	23/10/10	2.1 – 2.4
Xylenes	ND (0.05)	A1053/A1055	BH2 & 3	23/10/10	2.1 – 2.4
<i>Petroleum Hydrocarbons</i>					
PHC F1	ND (7)	A1053/A1055	BH2 & 3	23/10/10	2.1 – 2.4
PHC F2	ND (4)	A1053/A1055	BH2 & 3	23/10/10	2.1 – 2.4
PHC F3	ND (8)	A1053/A1055	BH2 & 3	23/10/10	2.1 – 2.4
PHC F4	ND (6)	A1053/A1055	BH2 & 3	23/10/10	2.1 – 2.4
<i>OC Pesticides</i>					
2,4'-DDD	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
2,4'-DDE	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
2,4'-DDT	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
4,4'-DDD	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
4,4'-DDE	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
4,4'-DDT	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Aldrin	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
DDD (Total)	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
DDE (Total)	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
DDT (Total)	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Dieldrin	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Endosulfan I	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Endosulfan I + II	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Endosulfan II	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Endosulfan sulfate	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Endrin	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Endrin aldehyde	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Heptachlor	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Heptachlor epoxide	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Hexachlorobenzene	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Hexachlorobutadiene	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Hexachloroethane	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Methoxychlor	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Mirex	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
Oxychlorane	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
β-BHC	<0.001	A1051	BH1	23/10/10	0.0 – 0.3

α - Chlordane	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
α + γ -Chlordane	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
α -BHC	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
γ - Chlordane	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
γ -BHC (Lindane)	<0.001	A1051	BH1	23/10/10	0.0 – 0.3
δ -BHC	<0.001	A1051	BH1	23/10/10	0.0 – 0.3

Table 8 – Maximum Concentrations of each Contaminant in Groundwater as of the Certification Date.

Contaminant	Max. Conc.	Sample #	Location	Date	Depth (mbg.)
<i>Metals</i>					
Antimony	ND (0.5)	A1057/A1060A	BH/MW1	23/10/12	>0.927
Arsenic	2.9	A1057	BH/MW1	23/10/12	>0.927
Barium	30.3	A1060A	BH/MW1	23/10/12	>0.927
Beryllium	ND (0.5)	A1057/A1060A	BH/MW1	23/10/12	>0.927
Boron	338	A1057	BH/MW1	23/10/12	>0.927
Cadmium	ND (0.2)	A1057/A1060A	BH/MW1	23/10/12	>0.927
Chromium	ND (1.0)	A1057/A1060A	BH/MW1	23/10/12	>0.927
Cobalt	ND (0.5)	A1057/A1060A	BH/MW1	23/10/12	>0.927
Copper	2.8	A1060A	BH/MW1	23/10/12	>0.927
Lead	ND (0.2)	A1057/A1060A	BH/MW1	23/10/12	>0.927
Molybdenum	7.9	A1057	BH/MW1	23/10/12	>0.927
Nickel	1.2	A1060A	BH/MW1	23/10/12	>0.927
Selenium	1.5	A1060A	BH/MW1	23/10/12	>0.927
Silver	ND (0.2)	A1057/A1060A	BH/MW1	23/10/12	>0.927
Sodium	95800	A1060A	BH/MW1	23/10/12	>0.927
Thallium	ND (0.5)	A1057/A1060A	BH/MW1	23/10/12	>0.927
Uranium	6.3	A1060A	BH/MW1	23/10/12	>0.927
Vanadium	1.2	A1060A	BH/MW1	23/10/12	>0.927
Zinc	55.7	A1060A	BH/MW1	23/10/12	>0.927
<i>VOCs 2</i>					
Benzene	ND (0.5)	A1059/A1061	BH/MW2 & 3	23/10/12	>1.046
Toluene	ND (0.5)	A1059/A1061	BH/MW2 & 3	23/10/12	>1.046
Ethyl Benzene	ND (0.5)	A1059/A1061	BH/MW2 & 3	23/10/12	>1.046
Xylenes	ND (0.5)	A1059/A1061	BH/MW2 & 3	23/10/12	>1.046
<i>Petroleum Hydrocarbons</i>					
PHC F1	ND (25)	A1059/A1061	BH/MW2 & 3	23/10/12	>1.046
PHC F2	ND (100)	A1059/A1061	BH/MW2 & 3	23/10/12	>1.046
PHC F3	ND (100)	A1059/A1061	BH/MW2 & 3	23/10/12	>1.046
PHC F4	ND (100)	A1059/A1061	BH/MW2 & 3	23/10/12	>1.046
<i>OC Pesticides</i>					
Aldrin	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
alpha-Chlordane	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
gamma-Chlordane	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Chlordane	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
o,p-DDD	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
p,p-DDD	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
DDD	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
o,p-DDE	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
p,p-DDE	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
DDE	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
o,p-DDT	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
p,p-DDT	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
DDT	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Dieldrin	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Endosulfan I	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Endosulfan II	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Endosulfan I/II	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Endrin	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Heptachlor	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Heptachlor Epoxide	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Hexachlorobenzene	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Hexachlorobutadiene	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
G-BHC (LINDANE)	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Hexachloroethane	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927
Methoxychlor	ND (0.01)	A1057	BH/MW1	23/10/12	>0.927



(ii) Property Before Actions Taken to Reduce the Concentration of Contaminants

(i) Interpreted Contours of Groundwater Elevations

(ii) Contaminants in Soil Before Actions Taken to Reduce the Concentration of Contaminants

(iii) Contaminants in Ground Water Before Actions Taken to Reduce the Concentration of Contaminants

There were no contaminants in groundwater.

(iv) Contaminants in Sediment Before Actions Taken to Reduce the Concentration of Contaminants

There were no contaminants in sediment.

(v) Delineation

(vi) Contaminants of Concern in Areas of Potential Environmental Concern

10 APPENDICES

(a) General

(i) Sampling and Analysis Plan

1. General

Based on the 2019 Phase I ESA, the investigation consisted of a test pit program to delineate the vertical and horizontal extent of impacted soils; a confirmatory sampling of soil program the remedial excavations; and supplemental groundwater investigation to reduce the uncertainties identified in the APECs.

The program involved: location of underground utilities marked by public utilities; advancement of boreholes; monitoring well installation; soil and groundwater sampling and analysis; and, assessment of the findings and reporting of same.

2. Drilling and Excavation

The drilling program involved the advancement of a three borehole to 6.04 metres below grade surface (mbgs.), fitted with a monitoring well as follows:

- BH1 was located in the west portion of the Site to assess potential impacts to the soil and groundwater from historic pesticide use (OC pesticides and metals).
- BH2 was located in the area of the former fuel tank on the south side of the house at the south end of the Site to assess of impacts to the soil and groundwater the former fuel storage to the soil and groundwater (BTEX and PHC).
- BH3 was located in the area of the Site north and east of Four Mile Creek to assess impacts to the soil and groundwater from former fuel USTs located east of the Site (BTEX and PHC).

The boreholes were advanced, and wells installed by Strata Drilling Inc., an O. Reg. 903 licensed well contractor, with a D50-T direct push drilling rig,

3. Soil: Sampling

Soil samples were collected with a butylate lined 1.5 m long sampling tube on continuous basis.

The core samples were placed on a table in the field and split open for inspection in the field. Cores were inspected for soil types and logged. Soils were inspected for visible signs of petroleum staining and/ or odours.

Based on field observations, one worst case sample was taken. Soil samples for PHCs in the F2 to F4 fractions and metals were collected with a stainless steel knife and placed into jars prepared by the contract laboratory with appropriate preservatives as

required. Soil samples for BTEX and PHCs in the F1 fraction were collected with a disposable terracore sampler and placed into laboratory supplied vials with methanol. The samples were placed into a clean cooler with ice-packs for direct storage and transportation to the contract laboratory under chain-of-custody documentation. Based on field observations, one worst case sample of the fill/soil from each borehole was and placed into jars and vials prepared by the contract laboratory with appropriate preservatives as required. The samples were placed into a clean cooler with ice-packs for direct storage and transportation to the contract laboratory under chain-of-custody documentation.

Geologic description of the soil profiles are provided in the finalized field logs in Appendix Aii.

4. Field Screening Measurements

Soil vapours of the soils core samples were field screened to aid in selection of 'worst-case' soil samples for laboratory analysis. Evidence of PHC's and tested for head space TCV concentrations using an R.K.I. Instruments EAGLE portable gas analyzer calibrated with hexane (without registering a response for methane).

Selected soil samples from each soil core were placed into plastic bags with minimum head-space and the detector probe was inserted into the bag head space for 15 seconds during which the highest reading was taken during the interval.

5. Ground Water: Well Installation

The monitoring wells were installed by Strata Drilling Inc., an O. Reg. 903 licensed well contractor. The wells were installed in accordance with O. Reg. 903, as amended, and tagged. Upon completion, the boreholes were instrumented with a monitoring well. The wells were constructed of new 3 m long x 50 mm diameter Number 10 slot schedule 40 PVC screen with threaded flush jointed riser which remained in their sealed packing until placed into the borehole. No lubricants or adhesives were used in the well construction. The annular space around the well screen was backfilled with #3 silica sand to 0.3 m above the screen to allow for settlement and expansion of the overlying seal. Granular bentonite seal was placed in the borehole annulus from the top of the sand pack to approximately 0.15 mbg. The monitoring wells were completed with a flush mount protective metal casing cemented in place. Details of the well construction are provided in the borehole logs and the following table:

BH	Bottom of screen (mbg.)	Top of Screen (mbg.)	Top of Sand Pack (mbg)	Top of bentonite seal (mbg)	Static water level (mbg)*	Surface elevation (m)
BH/MW1	6.04	3.02	2.72	0.15	0.927	109.05
BH/MW2	6.04	3.02	2.72	0.15	5.068	118.12
BH/MW3	6.04	3.02	2.72	0.15	1.046	109.20

No ground water sampling was taken during the advancement of the boreholes.

The wells were allowed to a minimum of 24 hours prior to sampling for well development.

6. Ground Water: Sampling

On October 12, 2023 the site was attended to record the groundwater levels in the wells, develop and purge the monitoring wells and collect ground water samples for chemical analysis.

An electronic interface probe was used to record the depth of ground water in the monitoring wells. Indications of LNAPL were noted. The probe was decontaminated between sampling points to prevent cross contamination. Based on the depths on the water levels, casing volumes of ground water in each well were calculated.

A dedicated clear polycarbonate bailer was used to purge a minimum of three casing volumes from each well prior to sampling. Indications of the presence of any LNAPL were noted. Purged water was placed into sealed plastic pails pending the analytical results.

Ground water samples were collected into new glass bottles and vials prepared by the contract laboratory with sodium bisulphate as a preservative as required. The samples were placed into a clean cooler with ice-packs for direct storage and transportation to the contract laboratory under chain-of-custody documentation.

7. Sediment Sampling

No sediment sampling was undertaken as part of this investigation.

8. Analytical Testing

- Soil and groundwater samples from BH/MW1 were analyzed for OC pesticides and metals.
- Soil and groundwater samples from BH/MW2 were analyzed for BTEX and PHC.
- Soil and groundwater samples from BH/MW3 were analyzed for BTEX and PHC.
- One duplicate soil sample for every ten soil samples was taken for QA/QC purposes.
- One duplicate groundwater sample, was taken of groundwater samples.

Soil and groundwater samples were submitted for analysis to Paracel Laboratories Ltd. in Hamilton, Ontario.

9. Residue Management

Soil cuttings were placed in sealed steel drums which were removed off site during the remediation program, and purged water from the wells was placed sealed plastic pails pending the outcome of the analytical results.

10. Elevation Surveying

Elevations were tied into the existing well elevations.

11. Quality Assurance and Quality Control Measures

All samples were placed into clean sample jars, bottles and or vials prepared by the contract laboratory following the laboratory protocols as follows:

- Soil samples for metals were collected from the core sample with a stainless steel knife and placed into 500 ml amber glass jars with no headspace and seal with Teflon lined lids.
- Soil samples for VOCs and PHC in the F1 fraction were collected with dedicated Terra-Core plastic samplers to collect 5 gms of soil and placed into a 40 ml. Clear glass vial with 10 ml of pre-measured methanol by the laboratory as a preservative.
- The sampling knife was decontaminated with alchonox and rinsed with distilled water between sampling events to prevent cross-contamination.
- Groundwater samples were collected with disposable bailers and decanted into containers prepared with preservatives by the laboratory.

A minimum of one field duplicate sample was taken for every ten field samples for soil and ground water during each sampling event quality control and assurance (QC/QA) purposes.

Disposable nitrile gloves were used during sampling handling. All sample containers were labelled by the contract laboratory and sample identifications and dates were placed on the label in the field at the time of sampling. The samples were placed into a clean cooler with ice-packs for direct storage and transportation to the contract laboratory under chain-of-custody documentation.

1

BOREHOLE LOG

Project: Phase II Environmental Site Assessment - 308 Four Mile Creek Road, St. Davids, On.

Date 23/10/10 Borehole No: 1 Drawing No:1 Project # 23058

Field Supervision: A. Breberina

☐ Undisturbed Tube Sample of range and size shown (drawn to scale)
 ☒ Disturbed Sample showing of depth (drawn to scale)
 ☒ Water Table

[illegible]

BOREHOLE LOG

Project: Phase II Environmental Site Assessment - 308 Four Mile Creek Road, St. Davids, On.

Date 23/10/10 Borehole No: 2 Drawing No:1 Project # 23058

Field Supervision: A. Breberina

☐ Undisturbed Tube Sample of range and size shown (drawn to scale)
 ☒ Disturbed Sample showing of depth (drawn to scale)
 ☒ Water Table

[illegible]

BOREHOLE LOG

Project: Phase II Environmental Site Assessment - 308 Four Mile Creek Road, St. Davids, On.

Date 23/10/10 Borehole No: 3 Drawing No:1 Project # 23058

Field Supervision: A. Breberina

☐ Undisturbed Tube Sample of range and size shown (drawn to scale)
 ☒ Disturbed Sample showing of depth (drawn to scale)
 ☒ Water Table

[illegible]

2. Certificates of Analysis

Certificate of Analysis

Andre Breberina

35 Fairview Road
Grimsby, ON L3M 3L4
Attn: Andre Breberina

Client PO:
Project: 23058
Custody: 143052

Report Date: 18-Oct-2023

Order Date: 12-Oct-2023

Order #: 2341269

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2341269-01	A1051
2341269-02	A1052
2341269-03	A1053
2341269-04	A1054
2341269-05	A1055
2341269-06	A1056

Approved By:



Alex Enfield, MSc

Lab Manager

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	13-Oct-23	16-Oct-23
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	16-Oct-23	16-Oct-23
PHC F1	CWS Tier 1 - P&T GC-FID	13-Oct-23	16-Oct-23
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	16-Oct-23	17-Oct-23
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	17-Oct-23	17-Oct-23
REG 153: Pesticides, OC	EPA 8081B - GC-ECD	13-Oct-23	13-Oct-23
Solids, %	CWS Tier 1 - Gravimetric	13-Oct-23	16-Oct-23
Texture - Coarse Med/Fine	Based on ASTM D2487	13-Oct-23	17-Oct-23

Certificate of Analysis

Client: Andre Breberina

Client PO:

Report Date: 18-Oct-2023

Order Date: 12-Oct-2023

Project Description: 23058

Summary of Criteria Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances.

Sample	Analyte	MDL / Units	Result	Reg 153/04 -T2 Res/Park, coarse	Reg 153/04 -T2 Res/Park, fine
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Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Client ID:	A1051	A1052	A1053	A1054	Criteria:	
Sample Date:	10-Oct-23 00:00	10-Oct-23 00:00	10-Oct-23 00:00	10-Oct-23 00:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2341269-01	2341269-02	2341269-03	2341269-04	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Physical Characteristics

% Solids	0.1 % by Wt.	85.8	83.5	81.8	82.1	-	-
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Metals

Antimony	1.0 ug/g	<1.0	<1.0	-	-	7.5 ug/g	7.5 ug/g
Arsenic	1.0 ug/g	5.6	3.8	-	-	18 ug/g	18 ug/g
Barium	1.0 ug/g	145	87.8	-	-	390 ug/g	390 ug/g
Beryllium	0.5 ug/g	1.0	0.6	-	-	4 ug/g	5 ug/g
Boron	5.0 ug/g	11.5	6.2	-	-	120 ug/g	120 ug/g
Cadmium	0.5 ug/g	<0.5	<0.5	-	-	1.2 ug/g	1.2 ug/g
Chromium	5.0 ug/g	32.6	20.7	-	-	160 ug/g	160 ug/g
Cobalt	1.0 ug/g	13.2	8.9	-	-	22 ug/g	22 ug/g
Copper	5.0 ug/g	30.8	17.5	-	-	140 ug/g	180 ug/g
Lead	1.0 ug/g	10.2	6.7	-	-	120 ug/g	120 ug/g
Molybdenum	1.0 ug/g	1.5	<1.0	-	-	6.9 ug/g	6.9 ug/g
Nickel	5.0 ug/g	28.5	18.3	-	-	100 ug/g	130 ug/g
Selenium	1.0 ug/g	1.2	<1.0	-	-	2.4 ug/g	2.4 ug/g
Silver	0.3 ug/g	<0.3	<0.3	-	-	20 ug/g	25 ug/g
Thallium	1.0 ug/g	<1.0	<1.0	-	-	1 ug/g	1 ug/g
Uranium	1.0 ug/g	<1.0	<1.0	-	-	23 ug/g	23 ug/g
Vanadium	10.0 ug/g	41.6	29.2	-	-	86 ug/g	86 ug/g
Zinc	20.0 ug/g	63.5	45.4	-	-	340 ug/g	340 ug/g

Volatiles

Benzene	0.02 ug/g	-	-	<0.02	<0.02	0.21 ug/g	0.17 ug/g
Ethylbenzene	0.05 ug/g	-	-	<0.05	<0.05	1.1 ug/g	1.6 ug/g
Toluene	0.05 ug/g	-	-	<0.05	<0.05	2.3 ug/g	6 ug/g
m,p-Xylenes	0.05 ug/g	-	-	<0.05	<0.05	-	-

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Client ID:	A1051	A1052	A1053	A1054	Criteria:	
Sample Date:	10-Oct-23 00:00	10-Oct-23 00:00	10-Oct-23 00:00	10-Oct-23 00:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2341269-01	2341269-02	2341269-03	2341269-04	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Volatiles

o-Xylene	0.05 ug/g	-	-	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	-	-	<0.05	<0.05	3.1 ug/g	25 ug/g
Toluene-d8	Surrogate	-	-	103%	103%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	-	-	<7	<7	55 ug/g	65 ug/g
F2 PHCs (C10-C16)	4 ug/g	-	-	<4	<4	98 ug/g	150 ug/g
F3 PHCs (C16-C34)	8 ug/g	-	-	<8	<8	300 ug/g	1300 ug/g
F4 PHCs (C34-C50)	6 ug/g	-	-	<6	<6	2800 ug/g	5600 ug/g

Pesticides, OC

Aldrin	0.01 ug/g	<0.01	<0.01	-	-	0.05 ug/g	0.05 ug/g
gamma-BHC (Lindane)	0.01 ug/g	<0.01	<0.01	-	-	0.056 ug/g	0.063 ug/g
alpha-Chlordane	0.01 ug/g	<0.01	<0.01	-	-	-	-
gamma-Chlordane	0.01 ug/g	<0.01	<0.01	-	-	-	-
Chlordane	0.01 ug/g	<0.01	<0.01	-	-	0.05 ug/g	0.05 ug/g
o,p'-DDD	0.01 ug/g	<0.01	<0.01	-	-	-	-
p,p'-DDD	0.02 ug/g	<0.02	<0.02	-	-	-	-
DDD	0.02 ug/g	<0.02	<0.02	-	-	3.3 ug/g	3.3 ug/g
o,p'-DDE	0.01 ug/g	<0.01	<0.01	-	-	-	-
p,p'-DDE	0.01 ug/g	<0.01	<0.01	-	-	-	-
DDE	0.01 ug/g	<0.01	<0.01	-	-	0.26 ug/g	0.33 ug/g
o,p'-DDT	0.01 ug/g	<0.01	<0.01	-	-	-	-
p,p'-DDT	0.01 ug/g	<0.01	<0.01	-	-	-	-
DDT	0.01 ug/g	<0.01	<0.01	-	-	1.4 ug/g	1.4 ug/g
Dieldrin	0.02 ug/g	<0.02	<0.02	-	-	0.05 ug/g	0.05 ug/g
Endrin	0.02 ug/g	<0.02	<0.02	-	-	0.04 ug/g	0.04 ug/g

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Client ID:	A1051	A1052	A1053	A1054	Criteria:	
Sample Date:	10-Oct-23 00:00	10-Oct-23 00:00	10-Oct-23 00:00	10-Oct-23 00:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2341269-01	2341269-02	2341269-03	2341269-04	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Pesticides, OC

Endosulfan I	0.01 ug/g	<0.01	<0.01	-	-	-	-
Endosulfan II	0.02 ug/g	<0.02	<0.02	-	-	-	-
Endosulfan I/II	0.02 ug/g	<0.02	<0.02	-	-	0.04 ug/g	0.04 ug/g
Heptachlor	0.01 ug/g	<0.01	<0.01	-	-	0.15 ug/g	0.15 ug/g
Heptachlor epoxide	0.01 ug/g	<0.01	<0.01	-	-	0.05 ug/g	0.05 ug/g
Hexachlorobenzene	0.01 ug/g	<0.01	<0.01	-	-	0.52 ug/g	0.52 ug/g
Hexachlorobutadiene	0.01 ug/g	<0.01	<0.01	-	-	0.012 ug/g	0.014 ug/g
Hexachloroethane	0.01 ug/g	<0.01	<0.01	-	-	0.089 ug/g	0.071 ug/g
Hexachloroethane	0.01 ug/g	<0.01	<0.01	-	-	0.089 ug/g	0.71 ug/g
Methoxychlor	0.01 ug/g	<0.01	<0.01	-	-	0.13 ug/g	0.13 ug/g
Decachlorobiphenyl	Surrogate	123%	130%	-	-	-	-

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Client ID:	A1055	A1056			Criteria:	
Sample Date:	10-Oct-23 00:00	10-Oct-23 00:00			Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2341269-05	2341269-06			Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil				
MDL/Units						

Physical Characteristics

% Solids	0.1 % by Wt.	77.7	80.1	-	-	-	-
>75 um	0.1 %	-	2.3	-	-	-	-
<75 um	0.1 %	-	97.7	-	-	-	-
Texture	0.1 %	-	Med/Fine	-	-	-	-

General Inorganics

pH	0.05 pH Units	-	7.71	-	-	5.00 - 9.00 pH Units	5.00 - 9.00 pH Units
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Volatiles

Benzene	0.02 ug/g	<0.02	-	-	-	0.21 ug/g	0.17 ug/g
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	1.1 ug/g	1.6 ug/g
Toluene	0.05 ug/g	<0.05	-	-	-	2.3 ug/g	6 ug/g
m,p-Xylenes	0.05 ug/g	<0.05	-	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	-	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	-	-	-	3.1 ug/g	25 ug/g
Toluene-d8	Surrogate	103%	-	-	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	-	-	-	55 ug/g	65 ug/g
F2 PHCs (C10-C16)	4 ug/g	<4	-	-	-	98 ug/g	150 ug/g
F3 PHCs (C16-C34)	8 ug/g	<8	-	-	-	300 ug/g	1300 ug/g
F4 PHCs (C34-C50)	6 ug/g	<6	-	-	-	2800 ug/g	5600 ug/g

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Metals								
Antimony	ND	1.0	ug/g					
Arsenic	ND	1.0	ug/g					
Barium	ND	1.0	ug/g					
Beryllium	ND	0.5	ug/g					
Boron	ND	5.0	ug/g					
Cadmium	ND	0.5	ug/g					
Chromium	ND	5.0	ug/g					
Cobalt	ND	1.0	ug/g					
Copper	ND	5.0	ug/g					
Lead	ND	1.0	ug/g					
Molybdenum	ND	1.0	ug/g					
Nickel	ND	5.0	ug/g					
Selenium	ND	1.0	ug/g					
Silver	ND	0.3	ug/g					
Thallium	ND	1.0	ug/g					
Uranium	ND	1.0	ug/g					
Vanadium	ND	10.0	ug/g					
Zinc	ND	20.0	ug/g					
Pesticides, OC								
Aldrin	ND	0.01	ug/g					
gamma-BHC (Lindane)	ND	0.01	ug/g					
alpha-Chlordane	ND	0.01	ug/g					
gamma-Chlordane	ND	0.01	ug/g					
Chlordane	ND	0.01	ug/g					
o,p'-DDD	ND	0.01	ug/g					
p,p'-DDD	ND	0.02	ug/g					
DDD	ND	0.02	ug/g					

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
o,p'-DDE	ND	0.01	ug/g					
p,p'-DDE	ND	0.01	ug/g					
DDE	ND	0.01	ug/g					
o,p'-DDT	ND	0.01	ug/g					
p,p'-DDT	ND	0.01	ug/g					
DDT	ND	0.01	ug/g					
Dieldrin	ND	0.02	ug/g					
Endrin	ND	0.02	ug/g					
Endosulfan I	ND	0.01	ug/g					
Endosulfan II	ND	0.02	ug/g					
Endosulfan I/II	ND	0.02	ug/g					
Heptachlor	ND	0.01	ug/g					
Heptachlor epoxide	ND	0.01	ug/g					
Hexachlorobenzene	ND	0.01	ug/g					
Hexachlorobutadiene	ND	0.01	ug/g					
Hexachloroethane	ND	0.01	ug/g					
Methoxychlor	ND	0.01	ug/g					
Surrogate: Decachlorobiphenyl	0.0936		%	93.6	50-140			
Volatiles								
Benzene	ND	0.02	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
m,p-Xylenes	ND	0.05	ug/g					
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: Toluene-d8	8.12		%	101	50-140			

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.91	0.05	pH Units	7.91			0.0	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	281	8	ug/g	272			3.4	30	
F4 PHCs (C34-C50)	660	6	ug/g	820			21.7	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	3.9	1.0	ug/g	3.3			14.6	30	
Barium	61.1	1.0	ug/g	56.5			7.9	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron	16.0	5.0	ug/g	12.1			28.1	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	13.2	5.0	ug/g	12.2			8.0	30	
Cobalt	4.3	1.0	ug/g	3.8			12.5	30	
Copper	17.3	5.0	ug/g	15.1			13.6	30	
Lead	61.0	1.0	ug/g	58.0			5.1	30	
Molybdenum	1.4	1.0	ug/g	ND			NC	30	
Nickel	9.8	5.0	ug/g	9.0			8.5	30	
Selenium	1.3	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	19.3	10.0	ug/g	18.5			4.6	30	
Zinc	106	20.0	ug/g	99.4			6.7	30	
Pesticides, OC									
Aldrin	ND	0.01	ug/g	ND			NC	40	
gamma-BHC (Lindane)	ND	0.01	ug/g	ND			NC	40	
alpha-Chlordane	ND	0.01	ug/g	ND			NC	40	
gamma-Chlordane	ND	0.01	ug/g	ND			NC	40	

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o,p'-DDD	ND	0.01	ug/g	ND			NC	40	
p,p'-DDD	ND	0.02	ug/g	ND			NC	40	
o,p'-DDE	ND	0.01	ug/g	ND			NC	40	
p,p'-DDE	ND	0.01	ug/g	ND			NC	40	
o,p'-DDT	ND	0.01	ug/g	ND			NC	40	
p,p'-DDT	ND	0.01	ug/g	ND			NC	40	
Dieldrin	ND	0.02	ug/g	ND			NC	40	
Endrin	ND	0.02	ug/g	ND			NC	40	
Endosulfan I	ND	0.01	ug/g	ND			NC	40	
Endosulfan II	ND	0.02	ug/g	ND			NC	40	
Heptachlor	ND	0.01	ug/g	ND			NC	40	
Heptachlor epoxide	ND	0.01	ug/g	ND			NC	40	
Hexachlorobenzene	ND	0.01	ug/g	ND			NC	40	
Hexachlorobutadiene	ND	0.01	ug/g	ND			NC	40	
Hexachloroethane	ND	0.01	ug/g	ND			NC	40	
Methoxychlor	ND	0.01	ug/g	ND			NC	40	
Surrogate: Decachlorobiphenyl	0.151		%		130	50-140			
Physical Characteristics									
% Solids	94.0	0.1	% by Wt.	98.1			4.3	25	
Volatiles									
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	8.40		%		103	50-140			

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	63	7	ug/g	ND	89.0	80-120			
F2 PHCs (C10-C16)	84	4	ug/g	ND	89.3	60-140			
F3 PHCs (C16-C34)	406	8	ug/g	272	63.7	60-140			
F4 PHCs (C34-C50)	810	6	ug/g	820	-6.59	60-140			QM-4X
Metals									
Antimony	49.6	1.0	ug/g	ND	99.1	70-130			
Arsenic	53.7	1.0	ug/g	1.3	105	70-130			
Barium	74.6	1.0	ug/g	22.6	104	70-130			
Beryllium	50.3	0.5	ug/g	ND	100	70-130			
Boron	56.0	5.0	ug/g	ND	102	70-130			
Cadmium	52.3	0.5	ug/g	ND	104	70-130			
Chromium	56.3	5.0	ug/g	ND	103	70-130			
Cobalt	50.6	1.0	ug/g	1.5	98.2	70-130			
Copper	55.9	5.0	ug/g	6.0	99.7	70-130			
Lead	74.2	1.0	ug/g	23.2	102	70-130			
Molybdenum	51.6	1.0	ug/g	ND	103	70-130			
Nickel	54.0	5.0	ug/g	ND	101	70-130			
Selenium	54.0	1.0	ug/g	ND	108	70-130			
Silver	45.4	0.3	ug/g	ND	90.7	70-130			
Thallium	52.9	1.0	ug/g	ND	106	70-130			
Uranium	53.8	1.0	ug/g	ND	107	70-130			
Vanadium	58.3	10.0	ug/g	ND	102	70-130			
Zinc	93.1	20.0	ug/g	39.8	107	70-130			
Pesticides, OC									
Aldrin	0.29	0.01	ug/g	ND	123	50-140			
gamma-BHC (Lindane)	0.31	0.01	ug/g	ND	134	50-140			
alpha-Chlordane	0.29	0.01	ug/g	ND	124	50-140			
gamma-Chlordane	0.29	0.01	ug/g	ND	123	50-140			
o,p'-DDD	0.26	0.01	ug/g	ND	111	50-140			
p,p'-DDD	0.27	0.02	ug/g	ND	114	50-140			

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o,p'-DDE	0.24	0.01	ug/g	ND	103	50-140			
p,p'-DDE	0.27	0.01	ug/g	ND	116	50-140			
o,p'-DDT	0.30	0.01	ug/g	ND	128	50-140			
p,p'-DDT	0.26	0.01	ug/g	ND	112	50-140			
Dieldrin	0.31	0.02	ug/g	ND	131	50-140			
Endrin	0.14	0.02	ug/g	ND	62.0	50-140			
Endosulfan I	0.30	0.01	ug/g	ND	130	50-140			
Endosulfan II	0.25	0.02	ug/g	ND	106	50-140			
Heptachlor	0.28	0.01	ug/g	ND	119	50-140			
Heptachlor epoxide	0.32	0.01	ug/g	ND	138	50-140			
Hexachlorobenzene	0.31	0.01	ug/g	ND	131	50-140			
Hexachlorobutadiene	0.28	0.01	ug/g	ND	120	50-140			
Hexachloroethane	0.27	0.01	ug/g	ND	118	50-140			
Methoxychlor	0.31	0.01	ug/g	ND	132	50-140			
Surrogate: Decachlorobiphenyl	0.150		%		129	50-140			
Volatiles									
Benzene	3.85	0.02	ug/g	ND	95.8	60-130			
Ethylbenzene	3.84	0.05	ug/g	ND	95.4	60-130			
Toluene	3.84	0.05	ug/g	ND	95.9	60-130			
m,p-Xylenes	7.60	0.05	ug/g	ND	94.7	60-130			
o-Xylene	3.90	0.05	ug/g	ND	97.1	60-130			
Surrogate: Toluene-d8	7.85		%		97.8	50-140			

Certificate of Analysis

Client: Andre Breberina

Client PO:

Report Date: 18-Oct-2023

Order Date: 12-Oct-2023

Project Description: 23058

Qualifier Notes:**Sample Qualifiers :****QC Qualifiers:**

QM-4X The spike recovery was outside of QC acceptance limits due to elevated analyte concentration.

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unless otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Client Name: ANDRE BREBERINA	Project Ref: 230SP	Page 1 of 1 Turnaround Time ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular Date Required: _____
Contact Name:	Quote #:	
Address:	PO #:	
Telephone:	E-mail: abreberina@hotmail.com	

☒ REG 153/04 ☐ REG 406/19	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis												
☐ Table 1 ☒ Res/Park ☐ Med/Fine ☒ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table _____ For RSC: ☐ Yes ☐ No	☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: _____ ☐ Other: _____	Matrix	Air Volume	# of Containers	Sample Taken		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)		
Sample ID/Location Name					Date	Time									
1 A1081		S			Oct 10/23										
2 A1052		↓													
3 A1053		↓													
4 A1054		↓													
5 A1055		↓													
6 A1056		↓													
7															
8															
9															
10															

Comments:			Method of Delivery: Walk In		
Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: dm	Verified By: dm		
Relinquished By (Print):	Date/Time:	Date/Time: 10/12/23 1400	Date/Time: 10/12/23 1416		
Date/Time: Oct 12/23	Temperature: _____ °C	Temperature: 15.4 °C	pH Verified: ☐		

Certificate of Analysis

Andre Breberina

35 Fairview Road
Grimsby, ON L3M 3L4
Attn: Andre Breberina

Client PO:
Project: 23058
Custody: 143051

Report Date: 18-Oct-2023

Order Date: 12-Oct-2023

Order #: 2341272

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2341272-01	A1057
2341272-02	A1058
2341272-03	A1059
2341272-04	A1060
2341272-05	A1061
2341272-06	Trip Blank
2341272-07	Field Blank

Approved By:



Milan Ralitsch, PhD

Senior Technical Manager

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	16-Oct-23	16-Oct-23
PHC F1	CWS Tier 1 - P&T GC-FID	13-Oct-23	16-Oct-23
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	13-Oct-23	16-Oct-23
REG 153: Metals by ICP/MS, water	EPA 200.8, ICP-MS	13-Oct-23	13-Oct-23
REG 153: Pesticides, OC	EPA 8081B - GC-ECD	17-Oct-23	17-Oct-23

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Summary of Criteria Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances.

Sample	Analyte	MDL / Units	Result	Reg 153/04 -T2 Potable Groundwater, coarse	Reg 153/04 -T2 Potable Groundwater, fine
A1057	Vanadium	0.5 ug/L	36.1	6.2 ug/L	6.2 ug/L
A1058	Vanadium	0.5 ug/L	63.1	6.2 ug/L	6.2 ug/L

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Client ID:	A1057	A1058	A1059	A1060	Criteria:	
Sample Date:	12-Oct-23 00:00	12-Oct-23 00:00	12-Oct-23 00:00	12-Oct-23 00:00	Reg 153/04 -T2 Potable Groundwater, coarse	Reg 153/04 -T2 Potable Groundwater, fine
Sample ID:	2341272-01	2341272-02	2341272-03	2341272-04		
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
MDL/Units						

Metals

Antimony	0.5 ug/L	<0.5	<0.5	-	-	6 ug/L	6 ug/L
Arsenic	1.0 ug/L	2.9	1.2	-	-	25 ug/L	25 ug/L
Barium	1.0 ug/L	25.3	40.6	-	-	1000 ug/L	1000 ug/L
Beryllium	0.5 ug/L	<0.5	<0.5	-	-	4 ug/L	4 ug/L
Boron	10.0 ug/L	338	329	-	-	5000 ug/L	5000 ug/L
Cadmium	0.2 ug/L	<0.2	<0.2	-	-	2.7 ug/L	2.7 ug/L
Chromium	1.0 ug/L	<1.0	<1.0	-	-	50 ug/L	50 ug/L
Cobalt	0.5 ug/L	<0.5	<0.5	-	-	3.8 ug/L	3.8 ug/L
Copper	0.5 ug/L	2.3	2.2	-	-	87 ug/L	87 ug/L
Lead	0.2 ug/L	<0.2	<0.2	-	-	10 ug/L	10 ug/L
Molybdenum	0.5 ug/L	7.9	8.9	-	-	70 ug/L	70 ug/L
Nickel	1.0 ug/L	<1.0	<1.0	-	-	100 ug/L	100 ug/L
Selenium	1.0 ug/L	<1.0	<1.0	-	-	10 ug/L	10 ug/L
Silver	0.2 ug/L	<0.2	<0.2	-	-	1.5 ug/L	1.5 ug/L
Sodium	200 ug/L	76700	61300	-	-	490000 ug/L	490000 ug/L
Thallium	0.5 ug/L	<0.5	<0.5	-	-	2 ug/L	2 ug/L
Uranium	0.2 ug/L	5.5	4.2	-	-	20 ug/L	20 ug/L
Vanadium	0.5 ug/L	36.1	63.1	-	-	6.2 ug/L	6.2 ug/L
Zinc	5.0 ug/L	<5.0	<5.0	-	-	1100 ug/L	1100 ug/L

Volatiles

Benzene	0.5 ug/L	-	-	<0.5	<0.5	5 ug/L	5 ug/L
Ethylbenzene	0.5 ug/L	-	-	<0.5	<0.5	2.4 ug/L	2.4 ug/L
Toluene	0.5 ug/L	-	-	<0.5	<0.5	24 ug/L	24 ug/L
m,p-Xylenes	0.5 ug/L	-	-	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	-	-	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Client ID:	A1057	A1058	A1059	A1060	Criteria:	
Sample Date:	12-Oct-23 00:00	12-Oct-23 00:00	12-Oct-23 00:00	12-Oct-23 00:00	Reg 153/04 -T2 Potable Groundwater, coarse	Reg 153/04 -T2 Potable Groundwater, fine
Sample ID:	2341272-01	2341272-02	2341272-03	2341272-04		
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
MDL/Units						

Volatiles

Xylenes, total	0.5 ug/L	-	-	<0.5	<0.5	300 ug/L	300 ug/L
Toluene-d8	Surrogate	-	-	107%	107%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	25 ug/L	-	-	<25	<25	750 ug/L	750 ug/L
F2 PHCs (C10-C16)	100 ug/L	-	-	<100	<100	150 ug/L	150 ug/L
F3 PHCs (C16-C34)	100 ug/L	-	-	<100	<100	500 ug/L	500 ug/L
F4 PHCs (C34-C50)	100 ug/L	-	-	<100	<100	500 ug/L	500 ug/L

Pesticides, OC

Aldrin	0.01 ug/L	<0.01	<0.01	-	-	0.35 ug/L	0.35 ug/L
gamma-BHC (Lindane)	0.01 ug/L	<0.01	<0.01	-	-	1.2 ug/L	1.2 ug/L
alpha-Chlordane	0.01 ug/L	<0.01	<0.01	-	-	-	-
gamma-Chlordane	0.01 ug/L	<0.01	<0.01	-	-	-	-
Chlordane	0.01 ug/L	<0.01	<0.01	-	-	7 ug/L	7 ug/L
o,p'-DDD	0.01 ug/L	<0.01	<0.01	-	-	-	-
p,p'-DDD	0.01 ug/L	<0.01	<0.01	-	-	-	-
DDD	0.01 ug/L	<0.01	<0.01	-	-	10 ug/L	10 ug/L
o,p'-DDE	0.01 ug/L	<0.01	<0.01	-	-	-	-
p,p'-DDE	0.01 ug/L	<0.01	<0.01	-	-	-	-
DDE	0.01 ug/L	<0.01	<0.01	-	-	10 ug/L	10 ug/L
o,p'-DDT	0.01 ug/L	<0.01	<0.01	-	-	-	-
p,p'-DDT	0.01 ug/L	<0.01	<0.01	-	-	-	-
DDT	0.01 ug/L	<0.01	<0.01	-	-	2.8 ug/L	2.8 ug/L
Dieldrin	0.01 ug/L	<0.01	<0.01	-	-	0.35 ug/L	0.35 ug/L
Endrin	0.01 ug/L	<0.01	<0.01	-	-	0.48 ug/L	0.48 ug/L
Endosulfan I	0.01 ug/L	<0.01	<0.01	-	-	-	-

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Client ID:	A1057	A1058	A1059	A1060	Criteria:	
Sample Date:	12-Oct-23 00:00	12-Oct-23 00:00	12-Oct-23 00:00	12-Oct-23 00:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2341272-01	2341272-02	2341272-03	2341272-04	Potable	Potable
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	Groundwater, coarse	Groundwater, fine
MDL/Units						

Pesticides, OC

Endosulfan II	0.01 ug/L	<0.01	<0.01	-	-	-	-
Endosulfan I/II	0.01 ug/L	<0.01	<0.01	-	-	1.5 ug/L	1.5 ug/L
Heptachlor	0.01 ug/L	<0.01	<0.01	-	-	1.5 ug/L	1.5 ug/L
Heptachlor epoxide	0.01 ug/L	<0.01	<0.01	-	-	0.048 ug/L	0.048 ug/L
Hexachlorobenzene	0.01 ug/L	<0.01	<0.01	-	-	1 ug/L	1 ug/L
Hexachlorobutadiene	0.01 ug/L	<0.01	<0.01	-	-	0.44 ug/L	0.6 ug/L
Hexachloroethane	0.01 ug/L	<0.01	<0.01	-	-	2.1 ug/L	2.1 ug/L
Methoxychlor	0.01 ug/L	<0.01	<0.01	-	-	6.5 ug/L	6.5 ug/L
Decachlorobiphenyl	Surrogate	75.8%	85.6%	-	-	-	-

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Client ID:	A1061	Trip Blank	Field Blank		Criteria:
Sample Date:	12-Oct-23 00:00	06-Oct-23 10:00	12-Oct-23 00:00		Reg 153/04 -T2
Sample ID:	2341272-05	2341272-06	2341272-07		Potable
Matrix:	Ground Water	Water	Ground Water		Groundwater, coarse
MDL/Units					Reg 153/04 -T2
					Potable
					Groundwater, fine

Volatiles

Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-	5 ug/L	5 ug/L
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-	2.4 ug/L	2.4 ug/L
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-	24 ug/L	24 ug/L
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-	300 ug/L	300 ug/L
Toluene-d8	Surrogate	107%	107%	108%	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-	750 ug/L	750 ug/L
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-	150 ug/L	150 ug/L
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-	500 ug/L	500 ug/L
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-	500 ug/L	500 ug/L

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	25	ug/L					
F2 PHCs (C10-C16)	ND	100	ug/L					
F3 PHCs (C16-C34)	ND	100	ug/L					
F4 PHCs (C34-C50)	ND	100	ug/L					
Metals								
Antimony	ND	0.5	ug/L					
Arsenic	ND	1.0	ug/L					
Barium	ND	1.0	ug/L					
Beryllium	ND	0.5	ug/L					
Boron	ND	10.0	ug/L					
Cadmium	ND	0.2	ug/L					
Chromium	ND	1.0	ug/L					
Cobalt	ND	0.5	ug/L					
Copper	ND	0.5	ug/L					
Lead	ND	0.2	ug/L					
Molybdenum	ND	0.5	ug/L					
Nickel	ND	1.0	ug/L					
Selenium	ND	1.0	ug/L					
Silver	ND	0.2	ug/L					
Sodium	ND	200	ug/L					
Thallium	ND	0.5	ug/L					
Uranium	ND	0.2	ug/L					
Vanadium	ND	0.5	ug/L					
Zinc	ND	5.0	ug/L					
Pesticides, OC								
Aldrin	ND	0.01	ug/L					
gamma-BHC (Lindane)	ND	0.01	ug/L					
alpha-Chlordane	ND	0.01	ug/L					
gamma-Chlordane	ND	0.01	ug/L					
Chlordane	ND	0.01	ug/L					
o,p'-DDD	ND	0.01	ug/L					
p,p'-DDD	ND	0.01	ug/L					

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
DDD	ND	0.01	ug/L					
o,p'-DDE	ND	0.01	ug/L					
p,p'-DDE	ND	0.01	ug/L					
DDE	ND	0.01	ug/L					
o,p'-DDT	ND	0.01	ug/L					
p,p'-DDT	ND	0.01	ug/L					
DDT	ND	0.01	ug/L					
Dieldrin	ND	0.01	ug/L					
Endrin	ND	0.01	ug/L					
Endosulfan I	ND	0.01	ug/L					
Endosulfan II	ND	0.01	ug/L					
Endosulfan I/II	ND	0.01	ug/L					
Heptachlor	ND	0.01	ug/L					
Heptachlor epoxide	ND	0.01	ug/L					
Hexachlorobenzene	ND	0.01	ug/L					
Hexachlorobutadiene	ND	0.01	ug/L					
Hexachloroethane	ND	0.01	ug/L					
Methoxychlor	ND	0.01	ug/L					
Surrogate: Decachlorobiphenyl	0.340		%	68.0	50-140			
Volatiles								
Benzene	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
m,p-Xylenes	ND	0.5	ug/L					
o-Xylene	ND	0.5	ug/L					
Xylenes, total	ND	0.5	ug/L					
Surrogate: Toluene-d8	86.9		%	108	50-140			

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	1240			NC	30	
Metals									
Antimony	1.1	0.5	ug/L	ND			NC	20	
Arsenic	3.0	1.0	ug/L	2.9			2.5	20	
Barium	24.8	1.0	ug/L	25.3			2.0	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	288	10.0	ug/L	338			16.0	20	
Cadmium	ND	0.2	ug/L	ND			NC	20	
Chromium	ND	1.0	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	2.2	0.5	ug/L	2.3			1.5	20	
Lead	ND	0.2	ug/L	ND			NC	20	
Molybdenum	7.8	0.5	ug/L	7.9			2.0	20	
Nickel	ND	1.0	ug/L	ND			NC	20	
Selenium	ND	1.0	ug/L	ND			NC	20	
Silver	ND	0.2	ug/L	ND			NC	20	
Sodium	72900	200	ug/L	76700			5.1	20	
Thallium	ND	0.5	ug/L	ND			NC	20	
Uranium	5.5	0.2	ug/L	5.5			1.1	20	
Vanadium	35.5	0.5	ug/L	36.1			1.6	20	
Zinc	ND	5.0	ug/L	ND			NC	20	
Volatiles									
Benzene	ND	0.5	ug/L	3.08			NC	30	
Ethylbenzene	ND	0.5	ug/L	38.9			NC	30	
Toluene	ND	0.5	ug/L	1.32			NC	30	
m,p-Xylenes	ND	0.5	ug/L	13.4			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	86.6		%		108	50-140			

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	606	25	ug/L	ND	85.7	68-117			
F2 PHCs (C10-C16)	1690	100	ug/L	ND	102	60-140			
F3 PHCs (C16-C34)	4440	100	ug/L	ND	120	60-140			
F4 PHCs (C34-C50)	3260	100	ug/L	ND	122	60-140			
Metals									
Antimony	54.7	0.5	ug/L	ND	109	70-130			
Arsenic	55.5	1.0	ug/L	2.9	105	70-130			
Barium	73.3	1.0	ug/L	25.3	96.0	70-130			
Beryllium	48.7	0.5	ug/L	ND	97.3	70-130			
Boron	46.6	10.0	ug/L	ND	93.3	80-120			
Cadmium	47.8	0.2	ug/L	ND	95.5	70-130			
Chromium	49.8	1.0	ug/L	ND	99.3	70-130			
Cobalt	47.8	0.5	ug/L	ND	95.4	70-130			
Copper	48.6	0.5	ug/L	2.3	92.6	70-130			
Lead	42.7	0.2	ug/L	ND	85.3	70-130			
Molybdenum	55.2	0.5	ug/L	7.9	94.6	70-130			
Nickel	46.6	1.0	ug/L	ND	92.7	70-130			
Selenium	52.1	1.0	ug/L	ND	103	70-130			
Silver	42.2	0.2	ug/L	ND	84.3	70-130			
Sodium	936	200	ug/L	ND	93.6	80-120			
Thallium	49.1	0.5	ug/L	ND	98.1	70-130			
Uranium	54.8	0.2	ug/L	5.5	98.8	70-130			
Vanadium	84.3	0.5	ug/L	36.1	96.4	70-130			
Zinc	49.1	5.0	ug/L	ND	93.4	70-130			
Pesticides, OC									
Aldrin	0.65	0.01	ug/L	ND	131	50-140			
gamma-BHC (Lindane)	0.70	0.01	ug/L	ND	140	50-140			
alpha-Chlordane	0.65	0.01	ug/L	ND	129	50-140			
gamma-Chlordane	0.62	0.01	ug/L	ND	123	50-140			
o,p'-DDD	0.65	0.01	ug/L	ND	130	50-140			

Certificate of Analysis

Report Date: 18-Oct-2023

Client: Andre Breberina

Order Date: 12-Oct-2023

Client PO:

Project Description: 23058

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
p,p'-DDD	0.63	0.01	ug/L	ND	125	50-140			
o,p'-DDE	0.58	0.01	ug/L	ND	116	50-140			
p,p'-DDE	0.44	0.01	ug/L	ND	88.3	50-140			
o,p'-DDT	0.67	0.01	ug/L	ND	134	50-140			
p,p'-DDT	0.51	0.01	ug/L	ND	102	50-140			
Dieldrin	0.69	0.01	ug/L	ND	138	50-140			
Endrin	0.63	0.01	ug/L	ND	125	50-140			
Endosulfan I	0.68	0.01	ug/L	ND	136	50-140			
Endosulfan II	0.63	0.01	ug/L	ND	126	50-140			
Heptachlor	0.68	0.01	ug/L	ND	136	50-140			
Heptachlor epoxide	0.61	0.01	ug/L	ND	121	50-140			
Hexachlorobenzene	0.40	0.01	ug/L	ND	80.7	50-140			
Hexachlorobutadiene	0.62	0.01	ug/L	ND	124	50-140			
Hexachloroethane	0.45	0.01	ug/L	ND	90.1	50-140			
Methoxychlor	0.44	0.01	ug/L	ND	88.5	50-140			
Surrogate: Decachlorobiphenyl	0.474		%		94.8	50-140			
Volatiles									
Benzene	41.9	0.5	ug/L	ND	104	50-140			
Ethylbenzene	40.7	0.5	ug/L	ND	101	50-140			
Toluene	42.7	0.5	ug/L	ND	107	50-140			
m,p-Xylenes	86.0	0.5	ug/L	ND	107	50-140			
o-Xylene	44.6	0.5	ug/L	ND	111	50-140			
Surrogate: Toluene-d8	76.9		%		95.8	50-140			

Certificate of Analysis

Client: Andre Breberina

Client PO:

Report Date: 18-Oct-2023

Order Date: 12-Oct-2023

Project Description: 23058

Qualifier Notes:**Sample Data Revisions:**

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Client Name: <u>Andre Buerger</u>	Project Ref: <u>23058</u>	Page <u>1</u> of <u>1</u>
Contact Name: <u>-11-</u>	Quote #:	Turnaround Time ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Address:	PO #:	
Telephone:	E-mail: <u>abuerger@hotmail.com</u>	
Date Required:		

☐ REG 153/04 ☐ REG 406/19 ☐ Table 1 ☒ Res/Park ☐ Med/Fine ☒ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table _____ For RSC: ☐ Yes ☐ No		Other Regulation ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: _____ ☐ Other: _____	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis											
Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	Cr-VI	B (HWS)		
					Date	Time									
1	A1057	SW			Oct 12/23										
2	A1058														
3	A1059														
4	A1060														
5	A1061														
6	Temp Blank														
7	Field Blank														
8															
9															
10															

Comments:			Method of Delivery: <u>Walk In</u>	
Relinquished By (Sign): <u>[Signature]</u>	Received By Driver/Depot:	Received at Lab: <u>[Signature]</u>	Verified By: <u>[Signature]</u>	
Relinquished By (Print):	Date/Time:	Date/Time: <u>10/12/23 1400</u>	Date/Time: <u>10/12/23 1438</u>	
Date/Time: <u>10/12/23</u>	Temperature: _____ °C	Temperature: <u>18.2</u> °C	pH Verified: <u>[Signature]</u>	

Certificate of Analysis

Andre Breberina

35 Fairview Road
Grimsby, ON L3M 3L4
Attn: Andre Breberina

Client PO:
Project: 23058
Custody: 143383

Report Date: 13-Nov-2023

Order Date: 10-Nov-2023

Order #: 2345432

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2345432-01	A1060A
2345432-02	A1061A

Approved By:



Milan Ralitsch, PhD

Senior Technical Manager

Certificate of Analysis

Report Date: 13-Nov-2023

Client: **Andre Breberina**

Order Date: 10-Nov-2023

Client PO:

Project Description: 23058

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, water	EPA 200.8, ICP-MS	10-Nov-23	10-Nov-23

Certificate of Analysis

Client: Andre Breberina

Client PO:

Report Date: 13-Nov-2023

Order Date: 10-Nov-2023

Project Description: 23058

Summary of Criteria Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances.

Sample	Analyte	MDL / Units	Result	Reg 153/04 -T2 Potable Groundwater, fine	-
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Certificate of Analysis

Report Date: 13-Nov-2023

Client: Andre Breberina

Order Date: 10-Nov-2023

Client PO:

Project Description: 23058

Client ID:	A1060A	A1061A	-	-	Criteria:
Sample Date:	09-Nov-23 09:00	09-Nov-23 09:00	-	-	Reg 153/04 -T2
Sample ID:	2345432-01	2345432-02	-	-	Potable
Matrix:	Ground Water	Ground Water	-	-	Groundwater, fine
MDL/Units					

Metals

Antimony	0.5 ug/L	<0.5	<0.5	-	-	6 ug/L	-
Arsenic	1.0 ug/L	<1.0	<1.0	-	-	25 ug/L	-
Barium	1.0 ug/L	30.3	36.6	-	-	1000 ug/L	-
Beryllium	0.5 ug/L	<0.5	<0.5	-	-	4 ug/L	-
Boron	10.0 ug/L	235	314	-	-	5000 ug/L	-
Cadmium	0.2 ug/L	<0.2	<0.2	-	-	2.7 ug/L	-
Chromium	1.0 ug/L	<1.0	<1.0	-	-	50 ug/L	-
Cobalt	0.5 ug/L	<0.5	<0.5	-	-	3.8 ug/L	-
Copper	0.5 ug/L	2.8	3.7	-	-	87 ug/L	-
Lead	0.2 ug/L	<0.2	<0.2	-	-	10 ug/L	-
Molybdenum	0.5 ug/L	5.1	6.1	-	-	70 ug/L	-
Nickel	1.0 ug/L	1.2	1.4	-	-	100 ug/L	-
Selenium	1.0 ug/L	1.5	1.9	-	-	10 ug/L	-
Silver	0.2 ug/L	<0.2	<0.2	-	-	1.5 ug/L	-
Sodium	200 ug/L	95800	122000	-	-	490000 ug/L	-
Thallium	0.5 ug/L	<0.5	<0.5	-	-	2 ug/L	-
Uranium	0.2 ug/L	6.3	9.0	-	-	20 ug/L	-
Vanadium	0.5 ug/L	1.2	1.3	-	-	6.2 ug/L	-
Zinc	5.0 ug/L	55.7	35.9	-	-	1100 ug/L	-

Certificate of Analysis

Report Date: 13-Nov-2023

Client: Andre Breberina

Order Date: 10-Nov-2023

Client PO:

Project Description: 23058

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals								
Antimony	ND	0.5	ug/L					
Arsenic	ND	1.0	ug/L					
Barium	ND	1.0	ug/L					
Beryllium	ND	0.5	ug/L					
Boron	ND	10.0	ug/L					
Cadmium	ND	0.2	ug/L					
Chromium	ND	1.0	ug/L					
Cobalt	ND	0.5	ug/L					
Copper	ND	0.5	ug/L					
Lead	ND	0.2	ug/L					
Molybdenum	ND	0.5	ug/L					
Nickel	ND	1.0	ug/L					
Selenium	ND	1.0	ug/L					
Silver	ND	0.2	ug/L					
Sodium	ND	200	ug/L					
Thallium	ND	0.5	ug/L					
Uranium	ND	0.2	ug/L					
Vanadium	ND	0.5	ug/L					
Zinc	ND	5.0	ug/L					

Certificate of Analysis

Report Date: 13-Nov-2023

Client: Andre Breberina

Order Date: 10-Nov-2023

Client PO:

Project Description: 23058

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1.0	ug/L	ND			NC	20	
Barium	30.6	1.0	ug/L	30.3			0.9	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	199	10.0	ug/L	235			16.4	20	
Cadmium	ND	0.2	ug/L	ND			NC	20	
Chromium	ND	1.0	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	2.8	0.5	ug/L	2.8			2.1	20	
Lead	ND	0.2	ug/L	ND			NC	20	
Molybdenum	4.8	0.5	ug/L	5.1			6.9	20	
Nickel	1.1	1.0	ug/L	1.2			1.8	20	
Selenium	1.6	1.0	ug/L	1.5			2.7	20	
Silver	ND	0.2	ug/L	ND			NC	20	
Sodium	94200	200	ug/L	95800			1.7	20	
Thallium	ND	0.5	ug/L	ND			NC	20	
Uranium	6.4	0.2	ug/L	6.3			0.5	20	
Vanadium	1.2	0.5	ug/L	1.2			1.3	20	
Zinc	55.9	5.0	ug/L	55.7			0.3	20	

Certificate of Analysis

Report Date: 13-Nov-2023

Client: Andre Breberina

Order Date: 10-Nov-2023

Client PO:

Project Description: 23058

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	62.9	0.5	ug/L	ND	126	70-130			
Arsenic	52.0	1.0	ug/L	ND	102	70-130			
Barium	77.3	1.0	ug/L	30.3	94.0	70-130			
Beryllium	49.3	0.5	ug/L	ND	98.6	70-130			
Boron	46.2	10.0	ug/L	ND	92.4	80-120			
Cadmium	46.0	0.2	ug/L	ND	92.0	70-130			
Chromium	49.7	1.0	ug/L	ND	99.1	70-130			
Cobalt	46.6	0.5	ug/L	ND	92.9	70-130			
Copper	48.6	0.5	ug/L	2.8	91.6	70-130			
Lead	42.1	0.2	ug/L	ND	84.3	70-130			
Molybdenum	52.9	0.5	ug/L	5.1	95.5	70-130			
Nickel	47.4	1.0	ug/L	1.2	92.5	70-130			
Selenium	54.7	1.0	ug/L	1.5	106	70-130			
Silver	38.3	0.2	ug/L	ND	76.5	70-130			
Sodium	860	200	ug/L	ND	86.0	80-120			
Thallium	50.1	0.5	ug/L	ND	99.9	70-130			
Uranium	51.5	0.2	ug/L	6.3	90.3	70-130			
Vanadium	49.9	0.5	ug/L	1.2	97.3	70-130			
Zinc	98.7	5.0	ug/L	55.7	86.1	70-130			

Certificate of Analysis

Client: Andre Breberina

Client PO:

Report Date: 13-Nov-2023

Order Date: 10-Nov-2023

Project Description: 23058

Qualifier Notes:**Sample Data Revisions:**

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Chain Of Custody
(Lab Use Only)
No 143383

Date Required: _____

Comments:			Method of Delivery:	
Relinquished By (Sign): 	Received By Driver/Depot:	Received at Lab:	Walk In	
Relinquished By (Print):	Date/Time:	Date/Time: 11/10/23 953.	Verified By: KB	Date/Time: Nov. 10/23 - 10:03
Date/Time: Nov 10/23	Temperature: °C	Temperature: 4.2 °C	pH Verified: ☒	By: KB