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Phase Two Environmental Site Assessment (ESA)

1989 Appleby Line, Burlington, Ontario

Project #
1901204

Prepared For
1989 Appleby Latch Limited Partnership

July 6, 2022

74 Berkeley Street, Toronto, ON M5A 2W7
Tel: 647-795-8153 | www.pecg.ca

July 6, 2022

Marc Nufrio
1989 Appleby Latch Limited Partnership
2 Bloor St W, Suite 700
Toronto, ON, M4W 3R1

Dear Marc Nufrio:

Re: Phase Two Environmental Site Assessment (ESA)
Project #: Error! Reference source not found.

We are pleased to present our Phase Two Environmental Site Assessment (ESA) report for the above-noted property. The scope of this Phase Two ESA conforms to the requirements outlined in Ontario Regulation 153/04 and 407/19. The purpose of this Phase Two ESA was to support a property pre-purchase, a development approval application with the City of Burlington and is required to support filing of a Record of Site Condition (RSC) with the Ministry of the Environment, Conservation and Parks (MECP).

The report provides information from Palmer's site reconnaissance, drilling activities, soil and ground water sampling, review of laboratory certificate of analysis, and our conclusions for your consideration.

We trust that this report will be satisfactory for your current needs. If you have any questions or require further information, please contact our office at your convenience.

Yours truly,

Sarah Sipak, B.Sc. P.Geo (Limited), QP_{ESA}
Environmental Geoscience Team Lead

Executive Summary

Palmer is pleased to provide this Phase Two Environmental Site Assessment (ESA) report to 1989 Appleby Latch Limited Partnership. The Phase Two ESA was prepared for the parcel of land located at 1989 Appleby Line, Burlington (hereafter collectively referred to as the “Phase Two Property”).

It is Palmer’s understanding that the purpose of this Phase Two ESA is to support a support a property pre-purchase, a development approval application with the City of Burlington and is required to support filing of a Record of Site Condition (RSC) with the Ministry of the Environment, Conservation and Parks (MECP). The Phase Two Property (also referred to as the "Subject Property" or "Site") is contemplated for residential redevelopment with a 20-storey residential building with ground floor commercial space and up to four (4) levels of underground parking. This Phase Two ESA Report has been prepared in accordance with Schedule E of Ontario Regulation 407/19 (amending Ontario Regulation 153/04) under the Environmental Protection Act (EPA).

The Phase Two Property is a 0.6008 hectare, rectangular shaped, parcel of land located on the northeast side of the intersection of Upper Middle Road and Appleby Line in Burlington, Ontario. Building structures on the Site include a 285 m^2 single storey commercial building (with no basement) and a 115 m^2 car wash station. The remaining parts of the Site comprise of asphalt-paved, concrete and grass covered surfaces. The Phase One Property is currently operating as a *Circle K Esso* gasoline service station, with car wash operations. Three (3) 46,400-L underground storage tanks (USTs) are present on the central portion of the Phase One Property (installed in 2003) with ten (10) associated fuel pumps and a fuel canopy located southeast of the tank nest. Car wash operations exist within the building on the northern portion of the property. A four (4) chamber oil/water interceptor is present south of the car wash building. In addition, two (2) concrete pad-mounted transformers were observed on the southern and eastern portions of the Phase Two Property, which are not considered to be polychlorinated biphenyl (PCB)-containing due to the year of installation (2003). No signage indicative of PCB-containing material was observed.

The Phase One Study Area (“surrounding area”) covers land uses within a 250 metre (m) radius of the Phase Two Property. The Phase One Study Area is developed with residential and commercial land uses, including the adjacent Enbridge gas pipeline and Hydro easement to the west of the Phase Two Property, and Green Terra Dry Cleaners (operating as a depot only) located south of the Phase Two Property at 1940 Appleby Line.

There are no water bodies or areas of natural significance on the Phase Two Property. A tributary of Sheldon Creek exists approximately 140 north of the Phase Two Property in the Phase One Study Area, which flows southeastward to Lake Ontario.

Historically, the Site remained vacant, undeveloped land prior to the existing gasoline service station development in 2003. Tenants of the building have included Imperial Oil Limited and Commisso Esso.

Based on the findings of the historical records review, Site reconnaissance, and personal interviews, it was concluded that three (3) potentially contaminating activities (PCAs) were identified either on the Phase Two Property or within the Phase One Study Area. These PCAs were deemed to be contributing to three (3) areas of potential environmental concern (APECs) on the Phase Two Property. The identified PCAs and APECs are as follows:

Table A. Summary of APECs and PCAs

APEC	Location of APEC on the Phase One Property	PCA	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern (COPC)	Media Potentially Impacted (Ground water, Soil and/or Sediment)
APEC #1: Gasoline Service Station with three (3) 46,400-L fuel Underground Storage Tanks (UST) and ten (10) fuel pumps	Central Portion of Phase One Property	#28 - Gasoline and Associated Products Storage in Fixed Tanks	**On-Site** – Existing *Circle K Esso* (formerly *Commisso Esso and Imperial Oil Limited*) Gasoline Service Station with three (3) 46,400-L double-walled fiberglass gasoline USTs in operation since 2003.	Petroleum Hydrocarbons (PHCs) Benzene, Toluene, Ethylbenzene, Xylene (BTEX) Metals Arsenic (As) Antimony (Sb) Selenium (Se)	Soil and Ground Water
APEC #2: Car Wash Operations	Northern Portion of Phase One property	Item #50 – Soap and Detergent Manufacturing, Processing, and Bulk Storage	**On-Site** – Existing *Circle K Esso* carwash in operation since 2003 located at 1989 Appleby Line.	Volatile Organic Compounds (VOCs)	Soil and Ground Water
APEC #3: Four (4) chamber oil/water interceptor	South Side of Car Wash Building on Phase One property	#28 - Gasoline and Associated Products Storage in Fixed Tanks	**On-Site** – Existing four (4)-chamber oil/water interceptor associated with the existing car wash operations on the south side of the car wash building.	PHCs BTEX VOCs	Soil and Ground Water

A Phase Two ESA was recommended to assess potential subsurface impacts as a result of the aforementioned PCAs and APECs.

The Phase Two ESA entailed the drilling of a total of seven (7) soil borings to depths ranging between 3.96 to 6.25 metres below ground surface (mbgs) at strategically selected and accessible locations on the Phase Two Property on October 12 and 13, 2021. Ground water monitoring wells were also installed in six (6) of the 7 boreholes. The stabilized ground water levels were measured at depths of 2.86 to 5.04 m below existing grade. No free product was measured in any of the monitoring wells.

Additional drilling of a total of six (6) sampled boreholes to depths ranging between 3.05 to 8.07 metres below ground surface (mbgs) at strategically selected and accessible locations on the Phase Two Property on April 11 and 12, 2022. Groundwater monitoring wells were also installed in five (5) of the boreholes. The stabilized ground water levels were measured at depths of 2.89 to 5.56 m below existing grade. No free-product was measured in any of the monitoring wells.

The observed soil stratigraphy generally comprised surficial asphalt and/or concrete overlying fill materials comprising of sand and/or gravel, silty clay and clayey silt fill, which was underlain by a stratum of clayey silt and silty clay till and weathered shale. The soil across the property is considered to be medium-fine textured for the purpose of this assessment.

Based on the site topography and ground water level measurements, the ground water flow is interpreted to flow across the Site in a southeasterly direction. The results of the ground water monitoring also indicate that the primary near surface water table resides within the native silty clay (till) or weathered shale layers.

Twenty-eight (28) soil samples (representative of fill and native soils) and sixteen (16) ground water samples were collected and submitted for laboratory analyses.

In comparison with the new (2011) Ontario *Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the* EPA criteria, the results of laboratory analyses revealed that all contaminant concentrations in the soil and ground water met the Table 3 Site Condition Standards (SCS) for residential/parkland/institutional (RPI) property uses with medium-fine textured soils in a non-potable ground water condition.

As the soil and ground water analytical results do not exceed the applicable Table 3 SCS, no appreciable impacts to the subsurface or other environmental concerns have been identified in association with the Phase Two Property. Therefore, in our opinion, no further actions are warranted at this time. Prior to filing the RSC for the proposed development, gasoline service station operations will need to be decommissioned and all subsurface structures (i..e, USTs) will need to be removed along with the completion of a soil verification sampling program.

The statements made in this Executive Summary are subject to the same limitations as contained in the report and should be read in conjunction with the entire report.

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1. Introduction

Palmer was retained by 1989 Appleby Latch Limited Partnership (the 'Client') to conduct a Phase Two Environmental Site Assessment (ESA) for the parcel of land located at 1989 Appleby Line (hereinafter referred to as the 'Phase Two Property'), as shown in **Drawing 1**.

It is Palmer's understanding that the purpose of this Phase Two ESA is to support a property pre-purchase, a development approval application with the City of Burlington and is required to support filing of a Record of Site Condition (RSC) with the Ministry of the Environment, Conservation and Parks (MECP). The Phase Two Property (also referred to as the "Subject Property" or "Site") is contemplated for residential redevelopment with a 20-storey residential building with ground floor commercial space and up to four (4) levels of underground parking. The Phase One ESA Report has been prepared in accordance with Schedule D of Ontario Regulation 407/19 (amending Ontario Regulation 153/04) under the Environmental Protection Act (EPA). The Phase One ESA includes an assessment of adjacent and neighbouring lands within a 250-metre (m) radius of the Phase One Property (hereafter referred to as the "Phase One Study Area").

The assessment consisted of a program of drilling, sampling, laboratory analysis and evaluation of results which characterized the subsurface conditions beneath the Site to establish any environmental contamination affecting the Site.

Conditions noted in this report are general in nature. This report presents the results of the investigation and the conclusions we have drawn regarding the possible impact of the conditions observed.

1.1 Phase Two Property Description

The Phase Two Property is a 0.6008 hectare, rectangular shaped, parcel of land located on the northeast side of the intersection of Upper Middle Road and Appleby Line in Burlington, Ontario. Building structures on the Site include a 285 m^2 single storey commercial building (with no basement) and a 115 m^2 car wash station. The remaining parts of the Site comprise of asphalt-paved, concrete and grass covered surfaces. The Phase One Property is currently operating as a *Circle K Esso* gasoline service station, with car wash operations. Three (3) 46,400-L underground storage tanks (USTs) are present on the central portion of the Phase Two Property (installed in 2003) with ten (10) associated fuel pumps and a fuel canopy located southeast of the tank nest. Car wash operations exist within the building on the northern portion of the property. A four (4) chamber oil/water interceptor is present south of the car wash building. In addition, two (2) concrete pad-mounted transformers were observed on the southern and eastern portions of the Phase Two Property, which are not considered to be polychlorinated biphenyl (PCB)-containing due to the year of installation (2003). No signage indicative of PCB-containing material was observed.

The subject property is located southeast of the Upper Middle Road and Appleby Line intersection as shown in **Drawing 1** and the photograph appendix. The municipal address is 1989 Appleby Line with Property Identification Number (PIN) 07183-0920 (LT).

The legal description of the Phase Two Property is Part of Lot 5, Concessions 2 SDS, designated as Parts 1 & 2 of Registered Plan 20R14677; subject to easement 63099 over Part 2, Reference Plan 20R-14677, Burlington, Province of Ontario.

The center of the Phase Two Property is located in UTM Zone 17, with approximate coordinates of Easting 598086 m and Northing 4805274 m.

1.2 Property Ownership

At the time of the investigation, the Phase Two Property was owned and occupied by Mac's Convenience Stores Inc. The authorization for Palmer to proceed with the Phase Two ESA was given by Mr. Marc Nufrio of 1989 Appleby Latch Limited Partnership. The contact information for the proponent is provided below:

Company Name:	1989 Appleby Latch Limited Partnership
Company Address:	2 Bloor St W, Suite 700, Toronto, ON, M4W 3R1
Contact Name:	Marc Nufrio
Contact email:	mnufrio@latch-developments.com

1.3 Current and Proposed Future Uses

Historically, the Site remained vacant, undeveloped land prior to the existing gasoline service station development in 2003. Tenants of the building have included Imperial Oil Limited and Commisso Esso.

The current and proposed land uses are as follows:

Current or Proposed	Description of Property Use
Current	Commercial – gasoline service station and car wash
Proposed	Residential – Future residential redevelopment with a 20-storey residential building with ground floor commercial space and up to four (4) levels of underground parking

1.4 Applicable Site Condition Standards

Ontario Regulation 153/04 - Records of Site Condition, Part XV.1 of the Environmental Protection Act as amended - "O.Reg. 153/04, as amended" - establishes the legislative and regulatory requirements for contaminated sites in Ontario. The Ministry of Environment, Conservation and Parks (MECP) document "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act," dated April 15, 2011, sets out the prescribed contaminants and applicable Site Condition Standards (SCS) for those contaminants for the purposes of O. Reg. 153/04, as amended. The MECP SCS are set out in Tables 1 to 9 criteria applicable for various site conditions.

The selection of the appropriate MECP SCS for a Phase Two ESA is dependent upon several site-specific conditions, such as the existing/proposed property use, the existing/potential ground water use, the depth of clean-up, soil texture, depth to bedrock and proximity to the nearest body of water.

The MECP SCS applicable to the Site have been evaluated on the basis of the following rationale:

Site Sensitivity:

- The site does not include, nor is there evidence to suggest it could have an adverse effect on a sensitive environment.
- The borehole drilling program revealed that the bedrock is approximately 2.90 metres (m) to 3.96 m below existing grade across the Site;
- The overburden consists of fill materials interpreted to be derived from re-worked glacially-derived native silty clay to clayey silt with gravel materials. Based on grain size sampling and soil interpretations, the majority of the soils on-site are considered to be medium-fine grained with limited permeability to depths up to at least 3.96 m below ground surface; and
- The subsurface soil pH values are between 7.41 and 7.90. Three (3) soil samples (including one (1) duplicate sample) were collected on October 12 between the surface and 3.00 m below existing grade, to determine the soil pH for the Phase Two Property.

Land Use:

- The subject site is currently developed with a building to support commercial land uses. Proposed residential redevelopment is anticipated.

Ground Water Use:

- The site is and will continue to be serviced by a municipal drinking water supply derived from Lake Ontario.

Depth and Soil Texture:

- For the purpose of the report, the assessment criteria corresponding to the full depth option will be used for comparison to the laboratory analytical results.
- One soil sample was collected on October 12, 2021, at the location of BH21-2 between 3.05 and 4.35 m below existing grade, to determine the soil grain size for the Phase Two Property. The grain size analysis is included in **Appendix A3.**
- Based upon field observations, and soil grain size analyses conducted by ALS Environmental, the site stratigraphy generally comprises medium-fine textured soils (37.41% silt and 33.32% clay). Therefore, for the purpose of this report, the assessment criteria corresponding medium-fine textured soils were selected for comparison in laboratory analytical results.
- The selected soil texture is applicable to at least one-third of the Site being assessed. Therefore, the medium-fine textured soil SCS can be used, as per Ontario Regulation 153/04, s.42 (1).

Based on the above information, the applicable EPA site assessment criteria selected for use at this Site is the Full Depth Generic SCS in a Non-Potable Ground Water Condition (Table 3) criteria for residential/parkland/institutional (RPI) land uses with medium-fine textured soils.

2. Background Information

The environmental investigation conducted at the Site and the details of our findings are outlined in **Section 3**. The Phase Two ESA was conducted at the Site to address the APECs identified by the Palmer 2022 Phase One ESA for the Site.

2.1 Physical Setting

The Phase Two Property is located at a topographic elevation of approximately 129 m above mean sea level (masl). Topography at and in the general vicinity of the Site is relatively flat with a drop in elevation to the southeast towards Lake Ontario, as shown in **Figure 8.2.1**.

The Phase Two Property is located within the broad physiographic region known as the Iroquois Plain (Chapman and Putnam, 1984). This region is a slightly sloping plain that is covered with stratified sands of carrying depths in some area and soil formed directly on the wave-eroded surface of red shale. This region borders Lake Ontario and extends around the western part of Lake Ontario from the Niagara River to the Trent River.

Local surficial geologic mapping (The Ontario Geological Survey, 2003) of the Burlington area indicates that Halton Till comprised of clay to soil-textured till (derived from glaciolacustrine deposits or shale) underlie the Phase Two Property.

Bedrock geologic mapping of Ontario (The Ontario Geological Survey, 1990) indicates that the glacially derived overburden soil at the Phase Two Property is underlain by shale, limestone, dolostone, and siltstone of the Queenston Formation.

No water bodies or areas of natural significance were observed on the subject property. However, a tributary of Sheldon Creek exists approximately 140 m north of the Site and Appleby Creek is located approximately 484 m south of the Phase One Study Area. The local hydrogeology is controlled by Appleby Creek, the underlying geology, and the topography and is surmised to be directed southeast.

There are no well-head protection areas, highly vulnerable aquifers, or significant ground water recharge areas in the vicinity of the Phase Two Property. The southern portion of the Phase Two Property falls within an intake protection zone (Zone 2 of the Halton Region Source Protection Area).

The Phase Two Property is serviced by a municipal drinking water system. However, one (1) well record exists within a 250 m search radius. This well is reportedly used for monitoring purposes in the Phase One Study Area.

Regional ground water flow is expected to be southeastward towards Appleby Creek and Lake Ontario. The static ground water level on the Phase Two Property was measured to be between 2.89 to 5.56 mbg.

2.2 Past Investigations

Two (2) reports relating to the environmental conditions at the Phase Two Property were provided by the Client and reviewed by Palmer. A summary of the description of relevant report data, analysis and findings relevant to the Phase Two ESA, including the presence of a contaminant on, in or under the Phase Two Property or the existence of an area of potential environmental concern, is as follows:

Report Title: Phase I Environmental Site Assessment, Commisso's Esso, 1989 Appleby Line
Date: June 12, 2015 (revised August 7, 2015)
Prepared by: Amec Foster Wheeler Environment & Infrastructure
Prepared for: Imperial Oil Limited

An Enhanced Phase I Environmental Site Assessment (ESA) was completed in accordance with the Canadian Standards Association (CSA) Z768-01. At the time of the investigation, the Phase One Property was operating as a service station, drive-thru restaurant, and drive-thru carwash. The enhancement of the Phase I ESA included the identification and completion of a species at risk evaluation and survey of potential sensitive receptors and their distance to/presence at the Site.

The investigation identified on-site and off-site Areas of Potential Environmental Concern (APECs) and associated Potential Contaminants of Concern (PCOCs). No off-site APECs were identified. On-site APECs and associated PCOCs were identified. The APECs include the use of the Site as a gasoline service station since 2003, including three (3) current USTs, and unknown quality of imported fill during development. PCOC include VOCs, PHCs, PAHs, metals, and inorganics.

Report Title: Phase One ESA, 1989 Appleby Line, Burlington, Ontario
Date: July 6, 2022
Prepared by: Palmer
Prepared for: 1989 Appleby Latch Limited Partnership

Based on the findings of the historical records review, site reconnaissance, and interviews; PCAs and APECs were identified in association with the Phase One Property and/or Phase One Study Area. Refer to Table A in the Executive Summary. A Phase Two ESA was recommended to assess potential subsurface impacts as a result of the PCAs and APECs identified in the Phase One ESA.

3. Scope of the Investigation

The Phase Two ESA Report has been prepared in accordance with Schedule E of Ontario Regulation 407/19 (amending Ontario Regulation 153/04) under the Environmental Protection Act (EPA). It is Palmer's understanding that the purpose of this Phase Two ESA was to support a development approval application with the City of Burlington and is required to support filing of an RSC with MECP. The Phase Two Property is contemplated for residential redevelopment with up to four (4) levels of underground parking.

3.1 Overview of Site Investigation

To address the APECs identified in the Palmer 2022 Phase One ESA, Palmer conducted a Phase Two ESA consisting of drilling boreholes, installing monitoring wells, and sampling and chemical testing of soil and Ground water samples during the Phase Two ESA investigation.

Seven (7) boreholes (BH/MW 21-1, BH/MW 21-2, BH/MW 21-3, BH/MW 21-4, BH/MW 21-5, BH/MW 21-6, BH21-7) were initially advanced across the Site. Six (6) of the boreholes, BH/MW21-1, BH/MW21-2, BH/MW21-3, BH/MW21-4, BH/MW21-5, BH/MW21-6, were completed as monitoring wells.

An additional six (6) boreholes (BH/MW22-1, BH22-2, BH/MW22-3, BH/MW22-4, BH/MW22-5, BH/MW22-6) were subsequently advanced across the Site. Five (5) of the boreholes (BH/MW22-1, BH/MW22-3, BH/MW22-4, BH/MW22-5, BH/MW22-6) were completed as monitoring wells.

The rationale for the selection of borehole/monitoring well locations is shown on **Table 1** below:

Table 1. APEC Locations and Associated Boreholes and Monitoring Wells

Areas of Potential Environmental Concern	Location on Site	COPC	Sample Location / Sample ID
APEC 1 (Associated with gasoline service station with (3) 46,400-L fuel Underground Storage Tanks (USTs) and ten (10) fuel pumps)	Central portion of Site	Petroleum Hydrocarbons (PHCs) Benzene, Toluene, Ethylbenzene, Xylene (BTEX) Metals Arsenic (As) Antimony (Sb) Selenium (Se)	BH/MW21-1, BH/MW21-3, BH/MW21-4, BH/MW21-5, BH/MW21-6, BH21-7, BH/MW22-4, BH/MW22-5, BH/MW22-6
APEC 2 (Associated with car wash)	Northern portion of Site	Volatile Organic Compounds (VOCs)	BH/MW21-2, BH/MW22-1, BH22-2, BH/MW22-3
APEC 3 (Associated with one (1) four (4) chamber oil/water interceptor)	South side of car wash building on the northern portion of the Site	PHCs BTEX VOCs	BH/MW21-2

The scope of work for this Phase Two ESA included the following tasks:

- Planned a site investigation through the preparation of a Sampling and Analysis Plan (refer to **Appendix A1**).
- Acquired utility locates: Prior to the advancement of the boreholes, arranging for the location of underground and overhead utilities including electrical (hydro), natural gas, water supply, sanitary and storm sewer, telephone, cable and communication. Underground utilities were marked by local utility locates company representatives, and a private locator, All Clear Locates, was retained to clear the borehole locations prior to drilling of the boreholes.
- Mobilized, drilled, and logged a total of twelve (12) sampled boreholes to a maximum depth of 8.07 metres below ground surface (mbgs).
- Installed 50-mm diameter perforated polyvinyl chloride (PVC) ground water monitoring wells in eleven (11) of the boreholes. All ground water monitoring wells were installed with 3.05 m of slotted PVC intake screen.
- Screened soil sample headspace for soil vapours using a portable photo ionization detector (PID) *Thermo 580B*.
- Measured the static ground water levels in the eleven (11) monitoring wells.
- Completed an elevation survey of the eleven (11) monitoring wells to obtain a ground water elevation measurement to confirm ground water flow direction at the Site at the time of the field investigation.
- Purged three (3) well casing volumes from each monitoring well or until each well was dry and collected ground water samples from the eleven (11) monitoring wells.
- Submitted soil and ground water samples under Chain of Custody protocol to an accredited laboratory to carry out chemical analysis for contaminants of potential concern in accordance with O.Reg. 153/04 - "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the *Environmental Protection Act*" published by the MECP and dated March 9, 2004, as amended by O. Reg. 511/09, s. 22 ("Analytical Protocol").
- Reviewed and interpreted laboratory results of chemical analysis data and observations made during the site investigation.
- Completed an evaluation of the information from the above and preparing a Phase Two Conceptual Site Model (CSM) to identify locations and concentrations of contaminants (if any) above the applicable SCS at the Site.
- Prepared a Phase Two ESA report of the investigation findings, conclusions, and recommendations.

3.2 Media Investigated

The Phase Two ESA included the investigation of soil and ground water at the Site.

Soil and ground water samples were selected for chemical analysis to determine whether any contaminants of potential concern (COPCs) were present in the soil and ground water in the locations of the APECs, outlined in the Palmer 2022 Phase One ESA.

A total of twenty-eight (28) soil samples, including seven (7) duplicate soil samples, and sixteen (16) ground water samples, including five (5) duplicate ground water sample and one (1) trip blank sample, were submitted to ALS Environmental and Paracel Laboratories, for analysis of various COPCs to investigate the soil and ground water quality related to the aforementioned APECs. These COPC included PHCs, VOCs, BTEX, Metals, As, Sb, and Se. Borehole and monitoring well locations are presented in **Drawing 2**.

As there is no surface water body on the Site, no sediment sampling is required.

3.3 Phase One Conceptual Site Model

Site Description

The Phase One Property is a 0.6008 hectare, rectangular shaped, parcel of land located on the northeast side of the intersection of Upper Middle Road and Appleby Line in Burlington, Ontario. Building structures on the Site include a 285 m^2 single storey commercial building (with no basement) and a 115 m^2 car wash station. The remaining parts of the Site comprise of asphalt-paved, concrete and grass covered surfaces. The Phase One Property is currently operating as a *Circle K Esso* gasoline service station, with car wash operations. Three (3) 46,400-L underground storage tanks (USTs) are present on the central portion of the Phase One Property (installed in 2003) with ten (10) associated fuel pumps and a fuel canopy located southeast of the tank nest. Car wash operations exist within the building on the northern portion of the property. A four (4) chamber oil/water interceptor is present south of the car wash building. In addition, two (2) concrete pad-mounted transformers were observed on the southern and eastern portions of the Phase Two Property, which are not considered to be polychlorinated biphenyl (PCB)-containing due to the year of installation (2003). No signage indicative of PCB-containing material was observed.

Historically, the Site remained vacant, undeveloped land prior to the existing gasoline service station development in 2003. Tenants of the building have included Imperial Oil Limited and Commisso Esso.

Water Bodies / Areas of Natural Significance

No water bodies or areas of natural significance were observed on the subject property. However, a tributary of Sheldon Creek exists approximately 140 m north of the Site and Appleby Creek is located approximately 484 m south of the Phase One Study Area.

Drinking Water Wells

There are no drinking water well records for the Phase One Property; however there is one (1) well records within a 250 m search radius. This well is reportedly used for monitoring purposes.

Neighboring Land Use

The Phase One Study Area is developed with residential and commercial land uses, including the adjacent Enbridge gas pipeline and Hydro easement to the west of the Phase One Property, and Green Terra Dry Cleaners (operating as a depot only) located south of the Phase One Property at 1940 Appleby Line, as presented in **Drawing 2**.

Areas of Potential Environmental Concerns (APECs)

Based on the findings of the historical record review, Site reconnaissance, and interviews, any APECs located on the Phase One Property and within the Phase One Study Area are labeled and located, as shown in **Drawing 2 and 3**.

The following Potentially Contaminating Activities (PCAs) were found to be associated with the current or historical land uses of the Phase One Property and/or Phase One Study Area:

APEC	Location of APEC on the Phase One Property	PCA	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern (COPC)	Media Potentially Impacted (Ground water, Soil and/or Sediment)
APEC #1: Gasoline Service Station with three (3) 46,400-L fuel Underground Storage Tanks (UST) and ten (10) fuel pumps	Central Portion of Phase One Property	#28 - Gasoline and Associated Products Storage in Fixed Tanks	**On-Site** – Existing *Circle K Esso* (formerly *Commisso Esso and Imperial Oil Limited*) Gasoline Service Station with three (3) 46,400-L double-walled fiberglass gasoline USTs in operation since 2003.	Petroleum Hydrocarbons (PHCs) Benzene, Toluene, Ethylbenzene, Xylene (BTEX) Metals Arsenic (As) Antimony (Sb) Selenium (Se)	Soil and Ground Water
APEC #2: Car Wash Operations	Northern Portion of Phase One property	Item #50 – Soap and Detergent Manufacturing, Processing, and Bulk Storage	**On-Site** – Existing *Circle K Esso* carwash in operation since 2003 located at 1989 Appleby Line.	Volatile Organic Compounds (VOCs)	Soil and Ground Water
APEC #3: Four (4) chamber oil/water interceptor	South Side of Car Wash Building on Phase One property	#28 - Gasoline and Associated Products Storage in Fixed Tanks	**On-Site** – Existing four (4)-chamber oil/water interceptor associated with the existing car wash operations on the south side of the car wash building.	PHCs BTEX VOCs	Soil and Ground Water

Additional PCAs were not identified in association with the Phase One Study Area.

Description of Assessment

PCAs with known or potential to affect the Phase One Property are as follows:

PCA Location	Location of APEC on the Phase One Property	Contaminants of Concern	Impact to Phase One Property (Known or Potential)
1989 Appleby Line	Central Portion of Phase One Property	PHCs, BTEX, Metals, As, Sb, Se	Potential
1989 Appleby Line	Northern Portion of Phase One property	VOCs	Potential
1989 Appleby Line	South Side of Car Wash Building on Northern Portion of Phase One property	PHCs, BTEX, VOCs	Potential

Underground utilities at the Phase One Property include sanitary sewer, storm sewer, municipal water main, communication cables, Hydro, and natural gas services. In addition, the following underground infrastructure is located on-Site:

- Three (3) liquid fuel USTs with ten (10) associated fuel pumps;
- Trench drain within the car wash; and
- Four (4) chamber oil/water separator south of the car wash.

Local surficial geologic mapping (The Ontario Geological Survey, 2003) of the Burlington area indicates that Halton Till comprised of clay to soil-textured till (derived from glaciolacustrine deposits or shale) underlie the Phase One Property.

No water bodies or areas of natural significance were observed on the subject property. However, a tributary of Sheldon Creek exists approximately 140 m north of the Site and Appleby Creek is located approximately 484 m south of the Phase One Study Area. The local hydrogeology is controlled by Appleby Creek, the underlying geology, and the topography and is surmised to be directed southeastward towards Lake Ontario.

The exemption set out in Section 49.1 of Ontario Regulation 153/04 is not being relied upon.

It is not expected that any uncertainty or absence of information would affect the validity of the Conceptual Site Model (CSM).

3.4 Deviations from Sampling and Analysis Plan

The field investigation and sampling program was carried out following the requirements of the Sampling and Analysis Plan (SAP) (shown in **Appendix A1**).

3.5 Impediments

There were no impediments at the Site during the Phase Two ESA on-site investigation.

4. Investigation Method

Fieldwork for this investigation conducted between October 12, 2021, and October 13, 2021 by soil sampling from a total of seven (7) exterior boreholes drilled to depths of 3.96 to 6.25 m below existing grade with the installation of six (6) monitoring wells shown in **Figure 8.2.2**. The boreholes on the Phase Two Property were strategically placed to address the PCAs and APECs identified in Table A.

Field work for the additional investigation was conducted between April 11 and April 12, 2022, by soil sampling from a total of two (2) interior and three (3) exterior boreholes drilled to depths of 3.05 to 8.07 m below existing grade with the installation of four (4) monitoring wells also shown in **Figure 8.2.2**. The boreholes on the Phase Two Property were strategically placed to address the PCAs and APECs identified in Table A.

4.1 General

This section of the report describes the various investigation methods used in the Phase Two ESA, including drilling, soil sampling, monitoring well installation, ground water sampling and analytical testing.

The Phase Two ESA was carried out in accordance with Palmer's SAP (**Appendix A1**).

The borehole locations were established in the field by Palmer staff prior to drilling. *Ontario One-Call* was contracted to locate and clear buried utility lines including telephone cables, natural gas mains, and hydro power lines. All the detected underground lines were identified on the ground by marking paints of various colours, as shown in **Drawing 2**.

Soil

Representative soil samples were recovered at each of the borehole locations. The soil stratigraphy was logged during drilling as soil samples were collected with dedicated dual tubes. Visual observations of any foreign materials or odours were also logged. The Finalized Field Logs are presented in **Appendix A2**.

Soil samples were split into portions that were collected into a plastic bag and a sample jar. Head space vapour concentrations were determined by allowing the bags to warm up to ambient temperature, probing into partially opened bags using a monitoring probe, and measuring the sample head space with a PID. Selected samples were placed in laboratory-supplied glass jars or vials and stored in a cooler during transport to the laboratory.

Ground Water

Upon completion of drilling, a 50-mm diameter PVC monitoring well was installed in eleven (11) boreholes for ground water monitoring. Initial ground water levels were measured, and a dedicated length of low-density polyethylene (LDPE) tubing was inserted into the wells.

The wells were purged to waste in sealed drums and fresh ground water samples were drawn for chemical analyses using a low-flow peristaltic pump. Samples were also placed in laboratory-supplied glass bottles or vials and stored in a cooler on ice during transport to the laboratory.

4.2 Drilling and Excavating

Boreholes were advanced by using a *Geoprobe 7822DT and Geoprobe 6712DT* mounted on a track equipped with augers and dual tubes, supplied and operated by Strata Drilling Group under the direction of Palmer staff.

Disposable nitrile gloves were used and replaced between the handling of samples and all soil sampling equipment (stainless steel trowels, spatulas, etc.) was thoroughly decontaminated between soil sample locations to prevent potential cross-contamination. Decontamination activities included physical removal of any adhered debris, wash/scrub in "Alconox" soap solution, distilled water rinse, methanol rinse, and air dry.

Samples were collected continuously from the dual tubes. Samples submitted to the laboratory were based on visual observations, results of headspace screening, and identified APECs and associated parameters of concern.

4.3 Soil: Sampling

All soil samples were collected in accordance with strict environmental sampling protocols to ensure reliable results. The equipment used to collect the soil samples was previously discussed in Section 4.0, 4.1, and 4.2.

The observed soil stratigraphy generally comprised surficial asphalt and/or concrete overlying fill materials comprising of sand and/or gravel, silty clay and clayey silt fill, which was underlain by a stratum of clayey silt and silty clay till and weathered shale, as described in **Table 2** below. The Finalized Field Logs are provided in **Appendix A2**.

Table 2. Soil Stratigraphy Summary

Borehole/ Monitoring Well ID	Soil Stratigraphy	Depth (m)	Observations
BH/MW21-1	Asphalt Pavement	0 to 0.1	No staining observed on the surface
	Sand and gravel fill	0.1 to 0.18	No staining or odour observed in this layer
	Brown silty clay fill, trace gravel	0.18 to 0.762	No staining or odour observed in this layer
	Brown silty clay fill, trace gravel and trace sand	0.762 to 1.52	No staining or odour observed in this layer
	Brown silty clay till, trace gravel and trace sand	1.52 to 2.29	No staining or odour observed in this layer
	Brown silty clay till, trace gravel, trace sand	2.29 to 2.90	No staining or odour observed in this layer
	Brownish-red weathered shale	2.90 to 3.05	No staining or odour observed in this layer
BH/MW21-2	Asphalt Pavement	0 to 0.08	No staining or odour observed in this

Borehole/ Monitoring Well ID	Soil Stratigraphy	Depth (m)	Observations
			layer
	Sand and gravel fill	0.08 to 0.23	No staining or odour observed in this layer
	Brown silty clay fill, trace gravel, trace sand, trace rootlets	0.23 to 0.76	No staining or odour observed in this layer
	Brown clay, some silt, fill, trace gravel and trace shale at 1.52 m	0.76 to 1.52	No staining or odour observed in this layer
	Brown clay, some silt, trace gravel, till	1.52 to 2.29	No staining or odour observed in this layer
	Brown clay, some silt, trace gravel, till	2.29 to 3.05	No staining or odour observed in this layer
	Brown clay, some silt, trace gravel, till	3.05 to 3.35	No staining or odour observed in this layer
BH/MW21-3	Asphalt Pavement	0 to 0.1	No staining or odour observed in this layer
	Brown silty clay, trace gravel, trace rootlets, fill	0.1 to 0.76	No staining or odour observed in this layer
	Brown silty clay, trace gravel, fill	0.76 to 1.52	No staining or odour observed in this layer
	Brown silty clay, trace gravel, till	1.52 to 2.29	No staining or odour observed in this layer
	Brown silty clay, trace gravel, till	2.29 to 3.05	No staining or odour observed in this layer
	Brown silty clay, trace gravel, till	3.05 to 3.35	No staining or odour observed in this layer
BH/MW21-4	Asphalt Pavement	0 to 0.1	No staining or odour observed in this layer
	Brown sand and gravel fill	0.1 to 0.18	No staining or odour observed in this layer
	Brown silty clay, trace gravel, fill	0.18 to 1.52	No staining or odour observed in this layer
	Brown silty clay, trace gravel, trace sand, till and gravel seam at 1.68 m	1.52 to 2.29	No staining or odour observed in this layer
	Brownish-red silty clay, trace gravel, till	2.29 to 3.05	No staining or odour observed in this layer
	Brownish-red silty clay, trace gravel, trace sand, till	3.05 to 3.66	No staining or odour observed in this layer
BH/MW21-5	Asphalt Pavement	0 to 0.1	No staining or odour observed in this layer
	Brown sand and gravel	0.1 to 0.18	No staining or odour observed in this layer
	Brown clay, some silt, trace gravel, fill	0.18 to 0.76	No staining or odour observed in this layer
	Brown clay, some silt, trace gravel, trace rootlets, fill	0.76 to 1.52	No staining or odour observed in this layer
	Brown clayey silt, trace gravel, till	1.52 to 2.29	No staining or odour observed in this layer
	Brown clayey silt, trace gravel, till	2.29 to 3.05	No staining or odour observed in this layer
	Brownish red clayey silt, trace clay seams, gravel seams, till, shale	3.05 to 3.35	No staining or odour observed in this layer
BH/MW21-6	Asphalt Pavement	0 to 0.1	No staining or odour observed in this layer
	Brown sand and gravel, trace silt, fill	0.1 to 1.22	No staining or odour observed in this layer

Borehole/ Monitoring Well ID	Soil Stratigraphy	Depth (m)	Observations
	Brown silty clay, trace gravel, trace rootlets, fill	1.22 to 1.52	No staining or odour observed in this layer
	Brown clayey silt, trace gravel, fill, gravel seam at 1.83 m	1.52 o 2.29	No staining or odour observed in this layer
	Brownish-red silty clay, trace gravel, till	2.29 to 3.05	No staining or odour observed in this layer
	Brownish-red silty clay, trace gravel, till	3.05 to 3.51	No staining or odour observed in this layer
	Brownish red clayey silt, trace clay seams, gravel seams, till, shale	3.51 to 3.96	No staining or odour observed in this layer
BH21-7	Asphalt Pavement	0 to 0.1	No staining or odour observed in this layer
	Brown sand and gravel, fill	0.1 to 0.18	No staining or odour observed in this layer
	Brown silty clay, trace gravel, fill	0.18 to 0.91	No staining or odour observed in this layer
	Brown silty clay, trace gravel, fill	0.91 to 1.52	No staining or odour observed in this layer
	Brown silty clay, trace gravel, till	1.52 to 2.44	No staining or odour observed in this layer
	Brown clay, some silt, trace gravel, till	2.44 to 3.05	No staining or odour observed in this layer
	Brown silty clay, some sand, trace gravel, moist, till, gravel seam and wet at 3.66 m	3.05 to 3.66	No staining or odour observed in this layer
	Brownish-red silty clay, some sand, trace gravel, till	3.66 to 3.96	No staining or odour observed in this layer
BH/MW22-1	Concrete	0 to 0.127	No staining or odour observed in this layer
	Brown silty sand and gravel, fill	0.127 to 0.61	No staining or odour observed in this layer
	Brown clayey silt, fill, trace gravel, trace sand	0.61 to 1.524	No staining or odour observed in this layer
	Brown clayey silt native	1.524 to 3.05	No staining or odour observed in this layer
	Brownish red-clayey silt weathered shale complex	3.05 to 3.81	No staining or odour observed in this layer
	Weathered shale	3.81 to 3.81	No staining or odour observed in this layer
BH/MW22-2	Concrete	0 to 0.102	No staining or odour observed in this layer
	Brown silty sand and gravel, fill	0.102 to 0.33	No staining or odour observed in this layer
	Brown clayey silt, fill, trace gravel, trace sand	0.33 to 1.52	No staining or odour observed in this layer
	Brown clayey silt, fill, trace gravel, trace sand, native	1.52 to 3.05	No staining or odour observed in this layer
BH22-3	Concrete	0 to 0.23	No staining or odour observed in this layer
	Brown sand and gravel fill	0.23 to 0.305	No staining or odour observed in this layer
	Brown silty clay, trace sand, trace gravel, fill	0.305 to 1.524	No staining or odour observed in this layer
	Brown clayey silt, trace sand, trace gravel, native	1.524 to 3.353	No staining or odour observed in this layer
	Red weathered shale	3.353 to 3.81	No staining or odour observed in this layer

Borehole/ Monitoring Well ID	Soil Stratigraphy	Depth (m)	Observations
BH/MW22-4	N/A	N/A	N/A
BH/MW22-5	Asphalt	0 to 0.152	No staining or odour observed in this layer
	Brown sand and gravel fill	0.152 to 0.610	No staining or odour observed in this layer
	Brown clayey silt fill, trace sand, trace gravel	0.762 to 1.37	No staining or odour observed in this layer
	Brown clayey silt native, trace sand, trace gravel	1.52 to 3.96	No staining or odour observed in this layer
	Weathered shale	3.96	No staining or odour observed in this layer
BH/MW22-6	Asphalt	0 to 0.152	No staining or odour observed in this layer
	Brown silty sand and gravel fill	0.152 to 0.762	No staining or odour observed in this layer
	Brown clayey silt fill, trace sand and trace gravel	0.762 to 1.52	No staining or odour observed in this layer
	Brown clayey silt, trace sand and trace gravel, native	1.52 to 3.05	No staining or odour observed in this layer
	Brownish-red silty clay, some gravel, native	3.05 to 3.66	No staining or odour observed in this layer
	Weathered shale	3.66 to 4.12	No staining or odour observed in this layer

4.4 Soil: Field Screening Methods

All soil samples were screened in the field for evidence of staining and odours. Soil sample headspace screening was also performed to facilitate sample selections for laboratory analysis and to provide an assessment of the vertical contaminant distributions at each borehole location.

The soil sample headspace screening was conducted with a PID Thermo 580B calibrated to a known isobutylene gas. The PID readings were recorded in parts per million (ppm), as shown in the Finalized Field Logs in **Appendix A2**.

4.5 Ground Water: Monitoring Well Installations

Upon completion of drilling, a 50-mm diameter, flush-joint threaded PVC monitoring well was installed in eleven (11) of the boreholes for ground water monitoring by Strata Drilling Group under the direction of Palmer staff.

The monitoring wells included a 3 m length of slotted PVC intake screen. The wells were then extended from the top of the intake screen to the ground surface using solid PVC riser pipe. A silica sand filter pack was placed between the intake screen and the wall of the borehole. The filter pack was extended approximately 0.6 m above the top of the well screen to allow for settlement of the sand packs and to accommodate expansion of the overlying well seals. A bentonite seal was placed above the sand pack and extended to approximately 0.3 mbgs. Concrete and a flush mount well casing were installed between 0.3 mbgs and the ground surface. No glue was used in the construction of the monitoring well.

Elevations and associated monitoring well construction details are shown in **Table 8.1.1**. The location of the monitoring wells are shown in **Figure 8.2.3**, and the well completion diagrams are also shown on the Finalized Field Logs in **Appendix A2**.

All ground water monitoring wells installed at the Phase Two Property were instrumented with sufficient lengths of LDPE tubing to facilitate well development and purging requirements. Following the initial installation, depths to the static water level were measured and each monitoring well was developed by purging either three (3) well casing volumes or until the well went dry at least once. The well development occurred in order to remove any fluids that may have been introduced into the well during drilling, to remove particulates that may have become entrained in the well and filter pack, to stabilize and grade the filter pack, improve connectivity between the well and the formation, and restore ground water that may have been disturbed or altered during the drilling process to ensure the samples to be representative of true formation waters. The purging activities were carried out using the dedicated LDPE tubing and a low-flow peristaltic pump.

Purging of the six (6) installed monitoring wells was completed on October 12, 2021, and was as follows:

Table 3. Monitoring Well Development Details

Monitoring Well ID	Date of Development/Purging	Time of Development/Purging	Volume of Fluid Removed from Well (L)
MW21-1	October 12, 2021	9:30 am	11.2
MW21-2	October 12, 2021	10:00 am	12.5
MW21-3	October 12, 2021	10:30 am	13.1
MW21-4	October 12, 2021	11:00 am	11.1
MW21-5	October 12, 2021	11:30 am	1.39
MW21-6	October 12, 2021	12:00 pm	0.00

The development was completed on the aforementioned date as all six (6) monitoring wells were purged a minimum of three (3) well volumes or purged until dry. MW21-6 remained dry and could not be developed.

Additional purging of five (5) newly installed monitoring wells was completed on April 19, 2022, and was as follows:

Table 4. Additional Monitoring Well Development Details

Monitoring Well ID	Date of Development/Purging	Time of Development/Purging	Volume of Fluid Removed from Well (L)
MW22-1	April 19, 2022	2:00 pm	1.34
MW22-3	April 19, 2022	3:00 pm	7.18
MW22-4	April 19, 2022	4:00 pm	14.0
MW22-5	April 19, 2022	5:00 pm	21.4
MW22-6	April 19, 2022	6:00 pm	2.68

The development was completed on the aforementioned date as all five (5) monitoring wells were purged three (3) well volumes or purged until dry.

4.6 Ground Water: Field Measurement of Ground water Quality Parameters

On October 22, 2021, after the monitoring wells were purged, the following water quality field parameters were measured using a Quanta multi-probe prior to sampling:

Table 5. Ground Water Quality Parameters

Monitoring Well ID	pH (pH units)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Temperature (°C)
MW21-1	6.89	0.702	5.81	18.16
MW21-2	6.69	0.581	2.15	18.74
MW21-3	6.90	0.626	2.34	15.62
MW21-4	6.87	0.390	2.32	15.71
MW21-5	6.88	0.441	1.89	14.62
MW21-6	-	-	-	-

On April 21, 2022, after the monitoring wells were purged, the following water quality field parameters were measured using a Quanta multi-probe prior to sampling:

Table 6. Additional Ground Water Quality Parameters

Monitoring Well ID	pH (pH units)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Temperature (°C)
MW22-1	8.00	2.736	7.09	12.6
MW22-3	7.58	2.680	6.24	11.1
MW22-4	6.85	2.123	5.39	10.1
MW22-5	7.34	4.255	2.21	11.3
MW22-6	11.90	4.603	6.38	9.7

4.7 Ground Water: Sampling

All ground water samples were collected in accordance with strict environmental sampling protocols to ensure reliable results. Any equipment used to collect the ground water samples are previously discussed in *Section 4.0, 4.1,* and *4.2*.

The wells were purged to waste in sealed drums and fresh ground water samples were drawn for chemical analyses. During the sampling round, ground water samples were collected using a low-flow peristaltic pump, with dedicated tubing installed in each of the monitoring wells. This method minimizes the velocity of the formation water entering the well screen, as the drawdown is kept to a minimum (i.e., less than 10 cm) by adjusting the pumping rate. The samples were placed in laboratory-supplied glass bottles or vials and stored in a cooler on ice during transport to the laboratory.

Ground water monitoring, including measuring the depth to the stabilized water level, was conducted on October 20, 2021, October 22, 2021, April 20, 2022, and April 28, 2022, water level measurements are shown in **Table 8.1.2**.

In addition, the ground water was screened in the field (during all monitoring events) for evidence of free product including presence of liquid petroleum hydrocarbons (LPH), sheen (iridescence), odour and colour, as summarized in **Table 8.1.3**.

4.8 Sediment: Sampling

As no water bodies are present on the Site, sediment sampling was not within the scope of this Phase Two ESA.

4.9 Analytical Testing

ALS Environmental (ALS) and Paracel Laboratories Ltd. (Paracel) performed chemical analysis on soil and ground water samples collected from boreholes/monitoring wells at the Site. ALS and Paracel are accredited laboratories under the Standards Council of Canada (SCC) and the Canadian Association for Laboratory Accreditation (CALA), in accordance with the international standard ISO/IE 17025:2005 – General Requirements for the Competence of Testing and Calibration. ALS/Paracel is accredited for all parameters required under Ontario Regulation 153/04 – Record of Site Condition, as outlined in MECP Technical Update entitled “Laboratory Accreditation Requirements under the New Records of Site Condition Regulation (O. Reg. 153/04).

Based on visual observations, results of headspace screening, and identified APECs and associated parameters of concern, twenty-eight (28) selected soil samples (representative of fill materials and native soils), and sixteen (16) ground water samples were submitted to ALS Environmental and Paracel Laboratories, for the following analyses:

- PHCs on sixteen (16) soil and fourteen (14) ground water samples (including four (4) QA/QC samples for soil and four (4) QA/QC samples for ground water);
- VOCs on sixteen (16) soil and fourteen (14) ground water samples (including four (4) QA/QC samples for soil and four (4) QA/QC samples for ground water);
- Metals on twelve (12) soil samples and nine (9) ground water samples (including three (3) QA/QC samples and one (1) QA/QC samples for ground water).

The Laboratory Certificate of Analyses and Analytical Reports are reproduced in **Appendix A3**.

4.10 Residue Management Procedures

All soil cuttings from the borehole drilling activities, water from the well development and purging, and all fluids from equipment cleaning are stored in secure containers on the Phase Two Property.

4.11 Elevation Surveying

The ground surface elevation of borehole and monitoring wells was surveyed by Palmer personnel. The elevations were surveyed based on a marked local benchmark. The benchmark is at Station

20220110017, located on the roof of 1050 Stacey Court, Mississauga, ON. The elevation at this point is understood to be at Ellipsoidal Elev. 120.138 metres.

A legal survey of the Phase Two Property can be seen in **Appendix A4**.

4.12 Quality Assurance and Quality Control Measures

A Quality Assurance and Quality Control (QA/QC) program, developed as part of the SAP, was followed by Palmer to ensure the integrity of all soil and ground water samples was maintained and that they were representative of the Site conditions. The QA/QC program was developed in accordance with the Analytical Protocol.

The jars and preservatives (where applicable) used in the collection of soil and ground water samples were supplied by ALS and Paracel. The soil samples intended to be submitted for analysis of VOCs and PHC F1 were immediately preserved in laboratory provided methanol vials to sequester the volatile compounds.

The soil samples from the boreholes which were advanced using solid stem augers were collected with dual tube samplers.

The soil and ground water samples were labelled as they were collected. Samples were stored in ice-packed coolers, until the samples were transported to the laboratory for chemical analysis. The soil and ground water samples were handed over to the laboratory by Palmer staff. Chains of Custody of the samples were logged with Chain of Custody Forms.

As discussed in Section 4.4 above, the monitoring wells were installed by direct drilling with dual tube, solid stem augers or Rock Coring for BH22-4 and BH22-5. All drilling equipment arrived at the Site in a pre-cleaned condition. The augers were cleaned with a brush and washed between monitoring well locations.

The stainless-steel sampling tool (trowel) was decontaminated between sampling locations in the following sequence: cleaned with a brush to remove adhered soil and/or debris, rinsed with distilled water and allowed to air dry.

Field duplicate samples for both soil and ground water were submitted to ALS and/or Paracel for chemical analysis for QA/QC purposes. For soil samples, seven (7) duplicate samples (BH22-2-2D, 22-6-5D, 22-6-3D, 21-2-1D, 21-3-5D,21-1-1D, 21-3-1D) were submitted to ALS and Paracel for analysis. For Ground water samples, five (5) duplicate ground water samples (22-3D, 22-5D, 22-6D, 21-2D, 21-3D,) and one (1) trip blank were submitted to ALS and Paracel for analysis.

The laboratory quality assurance program included the analysis of laboratory duplicate samples, methods blanks, matrix spikes and samples of reference materials, in accordance with the Analytical Protocol.

5. Review and Evaluation

5.1 Geology

The subsurface profiles and associated below grade elevations encountered at the Phase Two Property are described in the Finalized Field Logs in **Appendix A2**.

The estimated thickness range of each geologic unit is as follows:

Table 7. Summary of Geology

	Geologic Unit	Range Depth (m)
Surface	Asphalt Pavement	0.00 to 0.15
	Concrete	0.00 to 0.10
Fill Strata	Sand and Gravel	0.08 to 1.22
	Silty Clay Fill	0.1 to 1.52
	Clay	0.76 to 1.52
	Clayey Silt	0.61 to 3.35
Till Strata	Clay, Some Silt	1.52 to 3.35
	Silty Clay	0.76 to 3.66
	Clayey Silt	1.52 to 3.96
Bedrock	Weathered Shale	2.90 to 8.07

Based on grain size analysis (**Appendix A3**) and detailed soil logging, the soil across the property is considered to be medium-fine textured for the purpose of this ESA.

5.2 Ground Water: Elevations and Flow Direction

Ground water levels were measured in the monitoring wells on the following dates, using an Interface Probe. Ground water levels and measured elevations are presented on the borehole logs and are summarized below:

Table 8. Summary of Ground Water Conditions

Monitoring Well ID	Date	Ground Surface Elevation (mAMSL)	Depth to GW (mbgs)	GW Elevation (mAMSL)	Observations
BH/MW21-1	10/20/2021	139.365	2.86	136.505	None
BH/MW21-2	10/20/2021	139.722	4.20	135.522	None
BH/MW21-3	10/20/2021	139.557	4.07	135.487	None
BH/MW21-4	10/20/2021	139.372	2.88	136.492	None
BH/MW21-5	10/20/2021	139.386	5.03	134.356	None

BH/MW21-6	10/20/2021	139.50	DRY	-	None
BH/MW21-1	10/22/2021	139.365	2.92	136.445	None
BH/MW21-2	10/22/2021	139.722	4.27	135.452	None
BH/MW21-3	10/22/2021	139.557	4.07	135.487	None
BH/MW21-4	10/22/2021	139.372	2.91	136.462	None
BH/MW21-5	10/22/2021	139.386	5.04	134.346	None
BH/MW21-6	10/2220/21	139.50	DRY	-	None
BH/MW22-1	04/20/2022	141.50	5.56	135.94	None
BH/MW22-3	04/20/2022	141.192	4.46	136.732	None
BH/MW22-4	04/20/2022	139.216	4.32	134.896	None
BH/MW22-5	04/20/2022	138.31	4.61	133.7	None
BH/MW22-6	04/20/2022	138.236	4.09	134.146	None
BH/MW21-1	04/20/2022	139.365	2.93	136.435	None
BH/MW21-2	04/20/2022	139.722	4.28	135.442	None
BH/MW21-3	04/20/2022	139.557	4.17	135.387	None
BH/MW21-4	04/20/2022	139.372	2.89	136.482	None
BH/MW21-5	04/20/2022	139.386	5.08	134.306	None
BH/MW21-6	04/20/2022	139.50	DRY	-	None
BH/MW22-1	04/28/2022	141.50	5.49	136.01	None
BH/MW22-3	04/28/2022	141.192	4.62	136.572	None
BH/MW22-4	04/28/2022	139.216	4.32	134.896	None
BH/MW22-5	04/28/2022	138.31	4.48	133.83	None
BH/MW22-6	04/28/2022	138.236	3.86	134.376	None
BH/MW21-1	04/28/2022	139.365	2.95	136.415	None
BH/MW21-2	04/28/2022	139.722	4.13	135.592	None
BH/MW21-3	04/28/2022	139.557	4.14	135.417	None
BH/MW21-4	04/28/2022	139.372	4.27	135.102	None
BH/MW21-5	04/28/2022	139.386	5.25	134.136	None
BH/MW21-6	04/28/2022	139.50	DRY	-	None

The results of the ground water monitoring indicated that the primary near surface water table resides within the native silty clay (till) or weathered shale layers.

As summarized in **Table 8.1.3**, no free product was observed in any of the monitoring wells monitored on the Phase Two Property.

Based on the overburden ground water elevations measured on April 28, 2022, the ground water is interpreted to flow across the Site in a southeasterly direction. The ground water elevations and interpreted flow direction from April 28, 2022 is presented in **Figure 8.2.3**.

Temporal variability in the ground water flow direction could not be assessed during this Phase Two investigation since ground water elevations were not obtained seasonally. A comparison of ground water elevation data collected during the Fall 2021 investigation did reveal higher water levels which appears to be reflective of meteorological conditions and higher rates of precipitation in the fall months.

5.3 Ground water Hydraulic Gradients

The horizontal hydraulic gradient was estimated for the water table based on the April 28, 2022, ground water elevations.

The horizontal hydraulic gradient is calculated using the following equation:

$i = \Delta h/\Delta s$

Where,

i = horizontal hydraulic gradient
Δh (m) = Ground water elevation difference; and,
Δs (m) = separation distance.

The following horizontal hydraulic gradient calculations (as shown in **Figure 8.2.3**) using ground water monitoring data across the site revealed on the Phase Two Property:

		Horizontal Hydraulic Gradient in Fill Unit (m/m)
Horizontal	Average	0.063
	Maximum	0.081
	Minimum	0.021

It should be noted that vertical hydraulic gradients were not evaluated for the Site and ground water impacts were not vertically distributed at the depths investigated at the Phase Two Property.

The hydraulic conductivity of the silty clay and clayey silt till unit was derived by using Puckett's formula, which uses the percentage of clay or percentage of the sample finer than 0.002 mm by weight (refer to laboratory grain size analyses provided in **Appendix A3**). Based on grain size analysis testing, the hydraulic conductivity of the native till is on the order of 6.05×10^{-8} m/s. Therefore, the soil's ability to transmit water across the site (in the native till materials) is very slow and verifies that the potential for vertical migration of contamination is limited on the Phase Two Property. Furthermore, a hydraulic conductivity of 6.05×10^{-8} m/s is consistent with an unconsolidated deposit of glacial till with silt and loess (Freeze and Cherry, 1979) and represents a moderately impermeable aquitard unit.

5.4 Fine-Medium Soil Texture

Fine-medium soil texture was used for this investigation, as soil grain size analyses conducted by ALS Environmental on one (1) soil sample collected from the native till unit (BH21-2), revealed 37.41% silt and 33.32% clay, which resembles medium-fine textured soils as previously discussed in *Section 1.4*.

5.5 Soil: Field Screening

Sample headspace screening with the PID yielded readings from non-detect to 900 ppm, as shown in the Finalized Field Logs in **Appendix A2**.

These readings and any field observations (staining, odours, etc.) were considered when selecting soil samples for laboratory analyses.

5.6 Soil Quality

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes. The selection of representative “worst case” soil samples was based on visual and/or olfactory evidence of impacts, known historical contamination and the presence of potential water bearing zones. The results of the soil sample analyses, and their respective Table 3 SCS, are summarized in **Table Series 8.1.4**. Measured contaminant concentration exceedances in soil can be seen in **Figures 8.2.4a and 8.2.4b**.

A total of twenty-eight (28) soil samples including seven (7) duplicate soil samples were submitted to ALS and Paracel for analysis of various COPC to investigate the soil quality related to the APECs. These COPC included PHCs, VOCs, BTEX, metals and inorganic parameters (As, Sb, Se, pH).

The concentrations of COPCs in the tested soil samples were in compliance with the MECP Table 3 SCS. Trace concentrations of Petroleum Hydrocarbons and Metals were detected well below the Table 3 SCS.

5.7 Ground Water Quality

From October 22, 2021 to April 28, 2022, sixteen (16) ground water samples, including five (5) duplicates and one (1) trip blank were collected from monitoring wells BH/MW21-1, BH/MW21-2, BH/MW21-3, BH/MW21-4, BH/MW21-5, BH/MW22-1, BH/MW22-3, BH/MW22-4, BH/MW22-5, BH/MW22-6 to assess ground water quality at the Site. Ground water samples were not collected from monitoring well BH/MW21-6 due to the well being dry. The results of the ground water sample analyses, and their respective Table 3 SCS, are summarized in **Table Series 9.1.5**.

No evidence of free product (i.e., visible film or sheen), or odour was observed during well purging and ground water sampling from the newly installed wells and existing wells. Ground water samples that were analyzed for metal parameters were field filtered at the time of collection.

The samples collected were analysed for one or more of the COPCs, including PHCs, VOCs, BTEX, metals and inorganic parameters (As, Sb, Se, pH).

The concentrations of the COPCs in the tested ground water samples were in compliance with the MECP Table 3 SCS. Trace concentrations of Metals were detected well below the Table 3 SCS.

5.8 Sediment Quality

Sediment sampling was not part of this investigation, as previously discussed in *Section 4.8* and **Table 8.1.6**.

5.9 Quality Assurance and Quality Control Results

The QA/QC samples for this Phase Two ESA investigation included field duplicates for soil and ground water, and a trip blank for QA/QC purposes. The trip blank was submitted with ground water samples for analysis of VOCs.

The purpose of the duplicate samples is to measure the precision or reproducibility of the field and laboratory methodology used in the collection and analysis of the samples. The precision is evaluated in terms of the relative percent difference (RPD). The RPDs of the primary and duplicate samples were not calculated in situations where the concentrations of both primary and duplicate samples were at least 5 times less than the laboratory Reporting Detection Limits (RDLs) for the parameters analyzed.

Laboratory quality control limits for duplicate, method blank, method blank spike, matrix spike and surrogate recoveries were within the acceptable limits.

No tested parameters were detected in the trip blank.

All of the samples were handled in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (Analytical Protocol) with respect to preservation methods, storage requirements, or container type without any exception. Holding times were met for all samples.

The RPDs for all remaining reported concentrations were not calculated considering that the results were below the laboratory minimum detection limits or less than 5 times of the method detection limit in both samples. No other QA/QC concerns were noted.

Based on the review of QA/QC sample results of soil and ground water, it is certified that:

- All Certificates of Analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47 (3);
- A Certificate of Analysis report has been received for each sample submitted for analysis; and
- All Certificates of Analysis or analytical reports received have been included in full in **Appendix A3** of this Phase Two ESA report.

ALS and Paracel have certified that the analytical methods and data meet the requirements of the Analytical Protocol and that holding times were met for all samples.

Laboratory quality control limits for duplicate, method blank, method blank spike, matrix spike and surrogate recoveries were within the acceptable limits.

The sampling program was carried out in accordance with the SAP. All requirements of the Analytical Protocol were met.

In summary, decision making was not affected by the quality of the data obtained and the overall objectives of the assessment were met.

5.10 Phase Two Conceptual Site Model

Section i. A description and assessment of the Phase Two Property:

The Phase Two Property is currently operating as a *Circle K Esso* gasoline service station, with car wash operations since development in 2003. Tenants of the Phase Two Property have included Imperial Oil Limited and Commisso Esso. Potentially contaminating activities and/or areas of potential environmental concern have been identified with the existing use of the Phase Two Property.

<table>
<tr><td>A. Potentially Contaminating Activities (PCAs)</td><td>There are three (3) PCAs (1-3) on the Phase Two Property and no PCAs within the Phase One Study Area.

<table><tr><td>PCA 1 (Item #28)</td><td>On-Site</td><td>Existing gasoline service station with three (3) 46,400-L double-walled fiberglass gasoline USTs installed at a maximum depth of 4 mbg and ten (10) fuel pumps with fuel lines buried at a maximum depth of 1 mbg.</td></tr><tr><td>PCA 2 (Item #50)</td><td>On-Site</td><td>Existing car wash operations</td></tr><tr><td>PCA 3 (Item #28)</td><td>On-Site</td><td>Existing four (4) chamber oil/water interceptor</td></tr></table>
Refer to Drawing 3.</td></tr>
<tr><td>B. Areas of Potential Environmental Concerns (APECs)</td><td>There are three (3) APECs on the Phase Two Property where PCAs (on-Site) may have affected the soil and/or ground water at the Phase Two Property:

<table><tr><td>APEC 1</td><td>Existing gasoline service station with three (3) 46,400-L double-walled fiberglass gasoline USTs in operation since 2003 potentially impacting the central portion the Phase Two Property. Maximum contaminant concentrations are expected between1 to 4.5 mbg in soil and ground water.</td></tr><tr><td>APEC 2</td><td>Existing car wash operations with soap storage since 2003 potentially impacting the northern portion of the Phase Two Property. Maximum concentrations are expected between 1 to 3 mbg in soil and ground water.</td></tr><tr><td>APEC 3</td><td>Existing four (4)-chamber oil/water interceptor</td></tr></table></td></tr>
</table>

	associated with the car wash operations potentially impacting the northern portion of the Phase Two Property. Maximum concentrations are expected between the surface and 2 mbg in soil and ground water.

Refer to **Drawing 3** and **Drawing 4**.

Contaminants of Potential Concern (COPC) associated with the abovementioned APECs include the following:

APEC	COPC	Media Potentially Impacted	Borehole/ Monitoring Well Location Sampled for COPC
1	PHCs, VOCs Metals, As, Sb, Se	Soil and Ground Water	BH/MW21-1, BH/MW21-3, BH/MW21-4, BH/MW21-5, BH/MW21-6, BH21-7, BH/MW22-4, BH/MW22-5 BH/MW22-6
2	VOCs	Soil and Ground Water	BH/MW21-2, BH/MW22-1, BH/MW22-2, BH/MW22-3
3	PHCs, BTEX	Soil and Ground Water	BH/MW21-2

Soil samples associated with APEC 1 were collected at depths between 0.80 and 3.70 mbg in relation to the fuel USTs (maximum depth of 4 mbg) and associated pipelines (maximum depth of 1 mbg).

Soil samples associated with APEC 2 were collected at depths between 0.10 and 3.40 mbg in relation to the car wash building equipment being installed at a maximum depth of 3 mbg.

Soil samples associated with APEC 3 were collected at depths between the ground surface and 0.80 mbg in relation to the oil-water interceptor installed at a maximum depth of 1 mbg.

Refer to **Cross-Section A-A' and B-B'**.

C. Any subsurface structures and utilities on, in, or under the Phase Two Property	Subsurface structures including three (3) USTs and associated piping, fuel distribution lines connecting the USTs to fuel pumps, as well as a four (4) chamber oil-water interceptor were identified

	on, in, or under the Phase Two Property. Subsurface utilities identified on, in, or under the Phase Two Property include: • Sanitary sewer, storm sewer, and municipal water service; and • Burlington Hydro and Enbridge Gas. Refer to **Drawing 2**. Site-wide, subsurface structures and utilities are generally installed above the ground water table at the site.

Section ii. A description of the physical setting of the Phase Two Property:

The Phase One Property is a 0.6008 hectare, rectangular shaped, parcel of land located on the northeast side of the intersection of Upper Middle Road and Appleby Line in Burlington, Ontario. Refer to **Drawing 2.**

A. Stratigraphy from ground surface to the deepest aquifer or aquitard investigated

The observed soil stratigraphy comprised:

	Geologic Unit	Depth Range (m)
Surface	Asphalt Pavement	0.00 to 0.152
	Concrete	0.00 to 0.102
Fill Strata	Sand and Gravel Fill	0.08 to 1.22
	Silty Clay Fill	0.1 to 0.152
	Clay Fill	0.76 to 1.52
	Clayey Silt Fill	0.61 to 3.35
Till Strata	Silty Clay	0.76 to 3.66
	Clay, some Silt	1.52 to 3.35
	Clayey Silt	1.52 to 3.96
Bedrock	Weathered Shale	2.90 to 8.07

Fill strata was identified between 0.01 and 3.35 m below existing grade; however, no evidence of any man-made materials (i.e., waste, debris, concrete, etc.) was observed in the strata. Therefore, the observed fill material is considered to be re-worked native materials.

Refer to **Cross-Sections A-A' and B-B'**

One (1) soil sample was collected in the till strata between 3.05 and 3.55 mbgs to determine the soil grain size for the Phase Two Property. Based upon field observations, detailed soil characterization and soil grain size analyses conducted by the laboratory, the site stratigraphy generally comprises silty clay to clayey silt with trace gravel and sand.

<table>
<tr><td></td><td>Soil grain size analyses conducted by the laboratory classified the soil as comprising approximately 37.41% silt and 33.32% clay. Since more than 50% of the particles were smaller than 75 micrometres in diameter, the assessment criteria corresponding to medium-fine textured soils were selected for comparison in laboratory analytical results.</td></tr>
<tr><td>B. Hydrogeological characteristics</td><td>The results of the ground water monitoring indicated that the primary near surface water table resides within the native silty clay (till) or weathered shale layers.

No evidence of free product was observed in the ground water in the monitoring wells on the Phase Two Property, no visible PHC film or sheen was preset in the ground water during well development or in any ground water samples collected.

Ground water flow is interpreted to flow across the Site in a southeasterly direction. Refer to Figure 8.2.3.

The following horizontal hydraulic gradient calculations using ground water monitoring data across the site were revealed on the Phase Two Property:

<table>
<tr><th colspan="2"></th><th>Horizontal Hydraulic Gradient in Fill Unit (m/m)</th></tr>
<tr><td rowspan="3">Horizontal</td><td>Average</td><td>0.063</td></tr>
<tr><td>Maximum</td><td>0.081</td></tr>
<tr><td>Minimum</td><td>0.021</td></tr>
</table>

Based on grain size analysis testing, the hydraulic conductivity of the native till is 6.05×10^{-8} m/s. Therefore, the soil's ability to transmit water across the site (in the native till materials) is very slow and verifies that the potential for migration of contamination is limited on the Phase Two Property.</td></tr>
<tr><td>C. Approximate depth of bedrock</td><td>Weathered shale bedrock was encountered between 2.90 and 4.12 mbgs during this investigation. Competent bedrock was not encountered across the Site during this investigation.</td></tr>
<tr><td>D. Approximate depth to water table</td><td>Ground water was observed between 2.86 to 5.56 mbgs generally residing in the till unit and weather bedrock layer.</td></tr>
<tr><td>E. Any respect in which Section 35, 41, or 43.1 of the regulation applies to the property</td><td>Section 35, non-potable site condition standards, applies to the Phase Two Property based on the following:

• The property and all properties located within a 250 m radius of the property are supplied by a municipal drinking water system, as defined in the Safe Drinking Water Act, 2002 (shown in Drawing 3);</td></tr>
</table>

	• The proposed use of the Phase Two Property is residential use; • The property is not located in an area designated in the municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of groundwater, and there are no wells on the property or within the Phase One Study Area used for human consumption or agriculture; and, Section 41 and 43.1 do not apply to the Phase Two Property.
F. Areas on, in, or under the Phase Two Property where excess soil is finally placed	Excess soil was not imported to the Phase Two Property for backfilling and/or regrading purposes.
G. Approximate locations, if known, of any proposed buildings and other structures	The proposed redevelopment will be with a 20-storey residential building with ground floor commercial space and up to four (4) levels of underground parking. The proposed building location is presented in **Drawing 4**.

Section iii. Where a contaminant is present on, in, or under the Phase Two Property at a concentration greater than the applicable site condition standard, identification of:

A. Each area where a contaminant is present on, in or under the Phase Two Property	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
B. The contaminants associated with each of the areas referred to in subparagraph A	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
C. Each medium in which a contaminant associated with an area referred to in subparagraph is present	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
D. A description and assessment of what is known about each of the areas referred to in subparagraph A	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
E. The distribution, in each of the areas referred to in subparagraph A	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation. However, **Drawing 3** shows the profile locations for **Cross-Sections A-A',** and **B-B',** and depict the soil stratigraphy with no impacted areas.

F.	Anything known about the reason for the discharge of the contaminants present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard into the natural environment	See Item D.
G.	Anything known about migration of the contaminants present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard away from any area of potential environmental concern, including the identification of any preferential pathways	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
H.	Climatic or meteorological conditions that may have influenced distribution and migration of the contaminants	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation. Meteorological conditions may have influenced the distribution and migration of the contaminants by raising the ground water table. However, the calculated hydraulic conductivity revealed the soil's ability to transmit water across the site (in the native till materials) is very slow and verifies that the potential for migration of contamination is limited on the Phase Two Property. Ground water data for the Site does not suggest considerable influence on seasonal ground water levels due to climatic or meteorological conditions.
I.	If applicable, information concerning soil vapour intrusion of the contaminants into building including, (1) relevant construction features of a building, such as a basement or crawl space, (2) building heating, ventilation and air conditioning design and operation, (3) subsurface utilities	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.

Section iv. Where contamination is present on, in, or under the Phase Two Property at a concentration greater than the applicable site condition standard, one or more cross-sections:

This does not apply to the Phase Two Property, No areas of contamination were identified on, in, or under the Phase Two during this investigation. Refer to **Cross-Section A-A' and Cross-Section B-B'.**

Section v. For each area where a contaminant is present on, in or under the property at a concentration greater than the applicable site condition standard for the contaminant, a diagram identifying the release mechanisms, contaminant transport pathway, the human and ecological receptors located on, in, or under the Phase Two Property, receptor exposure points, and routes of exposure:

Primary sources of concern on the Phase Two Property are related to gasoline service station and car wash operations, and an oil-water interceptor. No exceedances have been identified in soil and/or ground water, therefore, no routes of exposure are currently present. Refer to **Drawing 6**.

Section vi. If a non-standard delineation was conducted in accordance with Section 7.1 of Schedule E as part of preparing the Phase Two ESA:

A non-standard delineation was not conducted as part of this Phase Two ESA.

Section vii. If the exemption set out in paragraph 1 or 2 of Section 49.1 is being relied upon:

The exemption set out in paragraph 1 or 2 of Section 49.1 of Ontario Regulation 407/19 is not being relied upon as part of this Phase Two ESA.

Section viii. If the exemption set out in paragraph 3 of Section 49.1 is being relied upon:

The exemption set out in paragraph 3 of Section 49.1 of Ontario Regulation 407/19 is not being relied upon as part of this Phase Two ESA.

Summary of Remedial Activities:

Remedial activities were not required at the Phase Two Property. All soil and ground water samples collected and analyzed for the COPC were well within the applicable Table 3 SCS for residential/parkland/ institutional land uses with medium-fine textured soils in a non-potable groundwater condition.

6. Conclusions

In comparison with the (2011) *Ontario Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the* EPA criteria, the results of the laboratory analyses indicated that the measured contaminated concentrations were well below the Table 3 SCS for RPI property uses with medium-fine textured soils in a non-potable groundwater condition.

As the soil and ground water analytical results do not exceed the applicable Table 3 SCS, no appreciable impacts to the subsurface or other environmental concerns have been identified in association with the Phase Two Property. Therefore, in our opinion, no further actions are warranted at this time. Prior to filing the RSC for the proposed development, gasoline service station operations will need to be decommissioned and all subsurface structures (i.e., USTs) will need to be removed along with the completion of a soil verification sampling program.

6.1 Limitations

This report was prepared by Palmer for the account of 1989 Appleby Latch Limited Partnership in accordance with the professional services agreement.

The conclusions and recommendations detailed in this report are based upon the information available at the time of preparation of the report. No investigative method eliminates the possibility of obtaining imprecise or incomplete information. Professional judgement was exercised in gathering and analyzing the information obtained and in the formulation of our conclusions and recommendations.

The nature of the sampling works makes it possible that contrary conditions may be identified in locations which were not sampled. However, it does suggest that the conditions will be localized and not extensive. The soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations made during drilling and therefore should not be interpreted as exact planes of geological change.

The disclosure of any information contained in this report is the sole responsibility of the intended recipient. The material in it reflects Palmer's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Palmer accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This limitations statement is considered part of this report.

Unless stated otherwise in this report, provided that the report is still reliable, and less than 18 months old, Palmer may issue a third-party reliance letter to parties, client identifies in writing, upon payment of the then current fee for such letters. All third parties relying on Palmer's report, by such reliance agree to be bound by our proposal and Palmer's standard reliance letter. Palmer's standard reliance letter indicates that in no event shall Palmer be liable for any damages, howsoever arising, relating to third-party reliance on Palmer's report. No reliance by any party is permitted without such agreement. This report is not to be given over to any third party for any purpose whatsoever without the written permission of Palmer.

The original of the technology-based document sent herewith has been authenticated and will be retained by Palmer for a minimum of five years. Since the file transmitted is now out of Palmer's control and its integrity can no longer be ensured, no guarantee may be given with regards to any modifications made to this document.

6.2 Signatures and Certification

This report was prepared by Sylvia Babiarz (M.Env.Sc.) who is currently an Environmental Scientist with Palmer in the Toronto Office. She has experience in conducting Phase One and Phase Two ESAs at various land use types, in accordance with Ontario Regulation 153/04 and 511/09 and the CSA Z768-01 environmental protocols.

This report was reviewed by Kalina Naydenova, M.Sc. who is an Environmental Scientist with Palmer in the Toronto Office. She has over twelve years' experience conducting numerous Phase One and Two ESAs at various land use types, conducting soil and ground water sampling procedures in accordance with ASTM 1527-13 and ASTM E1903-19, as well as experience with Ontario Regulation 153/04 and 511/09 and the CSA Z768-01 and Z769-00 environmental protocols.

This report was reviewed by Sarah Sipak, B.Sc., P.Geo (limited), QP_{ESA}, an Environmental Geoscience Team Lead in the Toronto office of Palmer. She has over 12 years' experience conducting Phase One and Two ESAs, soil and ground water sampling, and site remediation in accordance with Ontario Regulation 153/04 and 511/09, the CSA Z768-01 and Z769-00 environmental protocols, the Consulting Engineers of Ontario's Generally Accepted Standards for Environmental Investigations, and the Canadian Mortgage and Housing Corporation (CMHC) environmental site investigation procedures for mortgage loan insurance. The aforementioned ESAs have covered all land use types across Canada. Sarah also has numerous years of experience in preparing and filing Record of Site Conditions (RSCs) with the MECP. Sarah also has experience conducting Excess Soil Reuse Planning assessments and soil management in accordance with Ontario Regulation 406/19. Sarah is a Professional Geoscientist (P.Geo. (limited)), and is a Qualified Person (QP) under O. Reg. 153/04.

Prepared By:



Sylvia Babiarz, M.Env.Sc
Environmental Scientist

Reviewed By:



Kalina Naydenova, M.Sc.
Environmental Scientist



Sarah Sipak, B.Sc. P.Geo (Limited), QP_{ESA}
Environmental Geoscience Team Lead

7. References

- Atlas of Canada, Topographic Maps;
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- Terzaghi and Peck, Soil Mechanics in Engineering Practice, 1948;
- The Ontario Geological Survey, 1990; and,
- The Ontario Geological Survey, 2003.

8. Tables and Figures

8.1 Tables

8.1.1 Monitoring Well Installation

Monitoring Well ID	Ground Surface Elevation (mAMSL)	Monitoring Well Construction Details	Associated Elevations Below Grade (m)
BH/MW21-1	139.365	50-mm PVC solid riser pipe	136.265
		50-mm PVC slotted intake screen	134.655
BH/MW21-2	139.722	50-mm PVC solid riser pipe	139.622
		50-mm PVC slotted intake screen	136.532
BH/MW21-3	139.557	50-mm PVC solid riser pipe	139.457
		50-mm PVC slotted intake screen	138.507
BH/MW21-4	139.372	50-mm PVC solid riser pipe	139.272
		50-mm PVC slotted intake screen	137.672
BH/MW21-5	139.386	50-mm PVC solid riser pipe	139.286
		50-mm PVC slotted intake screen	137.174
BH/MW21-6	139.500	50-mm PVC solid riser pipe	139.400
		50-mm PVC slotted intake screen	137.290
BH/MW22-1	141.500	50-mm PVC solid riser pipe	149.063
		50-mm PVC slotted intake screen	136.635
BH/MW22-3	141.192	50-mm PVC solid riser pipe	141.092
		50-mm PVC slotted intake screen	138.600
BH/MW22-4	139.216	50-mm PVC solid riser pipe	139.116
		50-mm PVC slotted intake screen	135.614
BH/MW22-5	138.310	50-mm PVC solid riser pipe	138.210
		50-mm PVC slotted intake screen	133.288
BH/MW22-6	138.236	50-mm PVC solid riser pipe	138.136
		50-mm PVC slotted intake screen	136.756

8.1.2 Water Levels

Monitoring Well ID	Date	Ground Surface Elevation (mAMSL)	Depth to GW (mbgs)	GW Elevation (mAMSL)
BH/MW21-1	10/20/2021	139.365	2.86	136.505
BH/MW21-2	10/20/2021	139.722	4.20	135.522
BH/MW21-3	10/20/2021	139.557	4.07	135.487
BH/MW21-4	10/20/2021	139.372	2.88	136.492
BH/MW21-5	10/20/2021	139.386	5.03	134.356
BH/MW21-6	10/20/2021	139.50	DRY	-
BH/MW21-1	10/22/2021	139.365	2.92	136.445
BH/MW21-2	10/22/2021	139.722	4.27	135.452
BH/MW21-3	10/22/2021	139.557	4.07	135.487
BH/MW21-4	10/22/2021	139.372	2.91	136.462
BH/MW21-5	10/22/2021	139.386	5.04	134.346
BH/MW21-6	10/22/2021	139.50	DRY	-
BH/MW22-1	04/20/2022	149.163	5.56	143.603
BH/MW22-3	04/20/2022	141.192	4.46	136.732
BH/MW22-4	04/20/2022	139.216	4.32	134.896
BH/MW22-5	04/20/2022	138.31	4.61	133.7
BH/MW22-6	04/20/2022	138.236	4.09	134.146
BH/MW21-1	04/20/2022	139.365	2.93	136.435
BH/MW21-2	04/20/2022	139.722	4.28	135.442
BH/MW21-3	04/20/2022	139.557	4.17	135.387
BH/MW21-4	04/20/2022	139.372	2.89	136.482
BH/MW21-5	04/20/2022	139.386	5.08	134.306
BH/MW21-6	04/20/2022	139.50	DRY	-
BH/MW22-1	04/28/2022	141.500	5.49	136.010
BH/MW22-3	04/28/2022	141.192	4.62	136.572
BH/MW22-4	04/28/2022	139.216	4.32	134.896
BH/MW22-5	04/28/2022	138.31	4.48	133.83
BH/MW22-6	04/28/2022	138.236	3.86	134.376
BH/MW21-1	04/28/2022	139.365	2.95	136.415
BH/MW21-2	04/28/2022	139.722	4.13	135.592
BH/MW21-3	04/28/2022	139.557	4.14	135.417
BH/MW21-4	04/28/2022	139.372	4.27	135.102

BH/MW21-5	04/28/2022	139.386	5.25	134.136
BH/MW21-6	04/28/2022	139.50	DRY	-

8.1.3 LNAPLs and DNAPLs

No light or dense non-aqueous phase liquid measurements were detected at the Phase Two Property, as discussed in *Sections 4.7, 5.2*, and *5.7*.

8.1.4 Soil Data

8.1.4.1 *PHCs with BTEX*

Soil Analytical Results: Petroleum Hydrocarbons (PHCs) and Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

				PHCs						BTEX			
				F1 (C6-C10)	F1 (C6-C10) - BTEX*	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)	F4 (gravimetric)	Benzene	Toluene	Ethylbenzene	Xylenes, Total (Xylene Mixture)
				µg/g	µg/g	µg/g	µg/g	µg/g		µg/g	µg/g	µg/g	µg/g
O.Reg. 153/04 MOECC Guideline (2011), Res/Park/Inst Property Use, Medium-Fine Textured Soil, Non-Potable Ground Water Condition				65	65	150	1300	5600	5600	0.17	6	15	25
Sample Location	Sample ID	Sample Interval (mbgs)	Sample Date										
BH22-1	22-1-1	0-0.762	11-Apr-22	<7	-	<4	<8	<6	-	<0.02	<0.05	<0.05	<0.05
BH22-2	22-2-2	0.762-1.52	11-Apr-22	<7	-	<4	<8	<6	-	<0.02	<0.05	<0.05	<0.05
BH22-2	22-2-2D	0.762-1.52	11-Apr-22	<7	-	<4	<8	<6	-	<0.02	<0.05	<0.05	<0.05
BH22-3	22-3-5	3.05-3.35	12-Apr-22	<7	-	<4	<8	<6	-	<0.02	<0.05	<0.05	<0.05
BH22-5	22-5-4	2.29-3.05	05-Apr-22	<7	-	<4	<8	<6	-	<0.02	<0.05	<0.05	<0.05
BH22-6	22-6-5	3.05-3.66	11-Apr-22	<7	-	16	180	431	711	<0.02	<0.05	<0.05	<0.05
BH22-6	22-6-5D	3.05-3.66	11-Apr-22	<7	-	12	80	211	465	<0.02	<0.05	<0.05	<0.05
BH21-1	21-1-4	2.29 - 3.05	12-Oct-21	<5.0	<5.0	<10	<50	92	-	<0.0068	<0.080	<0.018	<0.030
BH21-2	21-2-1	0 - 0.762	12-Oct-21	<5.0	<5.0	<10	<50	<50	-	<0.0068	<0.080	<0.018	<0.030
BH21-2	21-2-1D	0 - 0.762	12-Oct-21	<5.0	<5.0	<10	<50	<50	-	<0.0068	<0.080	<0.018	<0.030
BH21-3	21-3-5	3.05 - 3.35	12-Oct-21	<5.0	<5.0	<10	69	<50	-	<0.0068	<0.080	<0.018	<0.030
BH21-3	21-3-5D	3.05 - 3.35	12-Oct-21	<5.0	<5.0	<10	215	<50	-	<0.0068	<0.080	<0.018	<0.030
BH21-4	21-4-5	3.05 - 3.66	13-Oct-21	<5.0	<5.0	<10	<50	<50	-	<0.0068	<0.080	<0.018	<0.030
BH21-5	21-5-5	3.05 - 3.35	13-Oct-21	<5.0	<5.0	<10	<50	<50	-	<0.0068	<0.080	<0.018	<0.030
BH21-6	21-6-3	1.52 - 2.29	13-Oct-21	<5.0	<5.0	<10	<50	<50	-	<0.0068	<0.080	<0.018	<0.030
BH21-7	21-7-5	3.66 - 3.96	13-Oct-21	<5.0	<5.0	<10	62	160	-	<0.0068	<0.080	<0.018	<0.030

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. **BOLD** *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Medium-Fine Textured Soils*
6. * *F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result*

8.1.4.2 Metals

Soil Analytical Results: Metals

				Metals																						
				Antimony	Arsenic	Barium	Beryllium	Boron (total)	Boron (Hot Water Soluble) *	Cadmium	Chromium Total	Chromium (VI)	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc	pH
				µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	pH Units
O.Reg. 153/04 MOECC Guideline (2011), Res/Park/Inst Property Use, Medium-Fine Textured Soil, Non-Potable Ground Water Condition				7.5	18	390	5	120	1.5	1.2	160	10	22	180	120	1.8	6.9	130	2.4	25	---	1	23	86	340	
Sample Location	Sample ID	Sample Interval (mbgs)	Sample Date																							
BH22-5	22-5-4	2.29-3.05	05-Apr-22	<1.0	4.2	46.9	<0.5	<5.0	-	<0.5	14.4	-	5.2	22.4	31.6	-	<1.0	12.6	<1.0	<0.3	-	<1.0	<1.0	26.1	109	-
BH22-6	22-6-3	1.52-2.29	11-Apr-22	<1.0	4.7	102	0.6	9.2	<0.5	<0.5	20	<0.2	10.9	21.8	10	<0.1	<1.0	22.6	<1.0	<0.3	-	<1.0	<1.0	27.6	53.2	-
BH22-6	22-6-3D	1.52-2.29	11-Apr-22	<1.0	4.5	116	0.7	10.6	<0.5	<0.5	21.1	<0.2	11.7	24	10.2	<0.1	<1.0	24	<1.0	<0.3	-	<1.0	<1.0	29.1	54.9	-
BH21-1	21-1-1	0 - 0.762	12-Oct-21	<1.0	5.3	98.6	0.74	10.6	-	<0.50	22	-	11.5	29.3	11.4	-	<1.0	25.1	<1.0	<0.20	-	<0.50	<1.0	31.6	61	-
BH21-1	21-1-1D	0 - 0.762	12-Oct-21	<1.0	5.4	101	0.65	11	-	<0.50	19.4	-	10.8	30.6	11.5	-	<1.0	22.4	<1.0	<0.20	-	<0.50	<1.0	29.1	66.8	-
BH21-3	21-3-1	0 - 0.762	12-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.43
BH21-3	21-3-1D	0 - 0.762	12-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.41
BH21-3	21-3-2	0.762 - 1.52	12-Oct-21	<1.0	5.3	87.3	0.74	10.3	-	<0.50	22.1	-	12.4	26.8	11.3	-	<1.0	26.7	<1.0	<0.20	-	<0.50	<1.0	32.4	83.6	-
BH21-4	21-4-1	0 - 0.914	12-Oct-21	<1.0	5.2	94.7	0.77	8.6	-	<0.50	22.1	-	11.5	25.6	12.5	-	<1.0	25.8	<1.0	<0.20	-	<0.50	<1.0	32.3	65.2	7.9
BH21-5	21-5-3	1.52 - 2.29	13-Oct-21	<1.0	4.7	107	0.55	10.1	-	<0.50	19.4	-	10.8	23.8	10.8	-	<1.0	22.9	<1.0	<0.20	-	<0.50	<1.0	27.4	52.3	-
BH21-6	21-6-2	1.22 - 1.52	13-Oct-21	<1.0	6.6	126	0.95	8.4	-	<0.50	29.9	-	14.2	30.3	18.1	-	<1.0	29.5	<1.0	<0.20	-	<0.50	<1.0	39.1	90.2	-
BH21-7	21-7-2	0.914 - 1.52	13-Oct-21	<1.0	5.9	123	0.81	7.5	-	<0.50	26.7	-	13.3	30.9	14.5	-	<1.0	28.6	<1.0	<0.20	-	<0.50	<1.0	36.8	72.4	-

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5.
6. * *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Medium-Fine Textured Soils*

Denotes the boron standards are for hot water-soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), as ecological criteria are not considered

8.1.4.3 VOCs

Soil Analytical Results: Volatile Organic Compounds (VOCs)

				VOCs																		
				Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroform	Dibromochloromethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	1,2-Dichloropropane
				μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g
O.Reg. 153/04 MOECC Guideline (2011), Res/Park/Inst Property Use, Medium-Fine Textured Soil, Non-Potable Ground Water Condition				28	0.17	13	0.26	0.05	0.12	2.7	0.17	9.4	4.3	6	0.097	25	11	0.05	0.05	30	0.75	0.085
Sample Location	Sample ID	Sample Interval (mbgs)	Sample Date																			
BH22-1	22-1-1	0 - 0.762	11-Apr-22	<0.50	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BH22-2	22-2-2	0.762-1.52	11-Apr-22	<0.50	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BH22-2	22-2-2D	0.762-1.52	11-Apr-22	<0.50	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BH22-3	22-3-5	3.05-3.35	12-Apr-22	<0.50	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BH22-5	22-5-4	2.29-3.05	05-Apr-22	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22-6	22-6-5	3.05-3.66	11-Apr-22	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22-6	22-6-5D	3.05-3.66	11-Apr-22	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21-1	21-1-4	2.29 - 3.05	12-Oct-21	-	<0.0068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21-2	21-2-1	0 - 0.762	12-Oct-21	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH21-2	21-2-1D	0 - 0.762	12-Oct-21	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH21-3	21-3-5	3.05 - 3.35	12-Oct-21	-	<0.0068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21-3	21-3-5D	3.05 - 3.35	12-Oct-21	-	<0.0068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21-4	21-4-5	3.05 - 3.66	13-Oct-21	-	<0.0068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21-5	21-5-5	3.05 - 3.35	13-Oct-21	-	<0.0068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21-6	21-6-3	1.52 - 2.29	13-Oct-21	-	<0.0068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH21-7	21-7-5	3.66 - 3.96	13-Oct-21	-	<0.0068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

				VOCs																		
				1,3-Dichloropropene (cis) + (trans)	EthyBenzene	Ethylene Dibromide	Hexane (n)	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Methyl tert-Butyl Ether (MTBE)	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	Vinyl Chloride	Xylenes, Total (Xylene Mixture)
				μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g
O.Reg. 153/04 MOECC Guideline (2011), Res/Park/Inst Property Use, Medium-Fine Textured Soil, Non-Potable Ground Water Condition				0.083	15	0.05	34	44	4.3	1.4	0.96	2.2	0.05	0.05	2.3	6	3.4	0.05	0.52	5.8	0.022	25
Sample Location	Sample ID	Sample Interval (mbgs)	Sample Date																			
BH22-1	22-1-1	0 - 0.762	11-Apr-22	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
BH22-2	22-2-2	0.762-1.52	11-Apr-22	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
BH22-2	22-2-2D	0.762-1.52	11-Apr-22	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
BH22-3	22-3-5	3.05-3.35	12-Apr-22	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
BH22-5	22-5-4	2.29-3.05	05-Apr-22	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05
BH22-6	22-6-5	3.05-3.66	11-Apr-22	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05
BH22-6	22-6-5D	3.05-3.66	11-Apr-22	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05
BH21-1	21-1-4	2.29 - 3.05	12-Oct-21	-	<0.018	-	-	-	-	-	-	-	-	-	-	<0.080	-	-	-	-	-	<0.030
BH21-2	21-2-1	0 - 0.762	12-Oct-21	<0.042	<0.018	-	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.030
BH21-2	21-2-1D	0 - 0.762	12-Oct-21	<0.042	<0.018	-	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.030
BH21-3	21-3-5	3.05 - 3.35	12-Oct-21	-	<0.018	-	-	-	-	-	-	-	-	-	-	<0.080	-	-	-	-	-	<0.030
BH21-3	21-3-5D	3.05 - 3.35	12-Oct-21	-	<0.018	-	-	-	-	-	-	-	-	-	-	<0.080	-	-	-	-	-	<0.030
BH21-4	21-4-5	3.05 - 3.66	13-Oct-21	-	<0.018	-	-	-	-	-	-	-	-	-	-	<0.080	-	-	-	-	-	<0.030
BH21-5	21-5-5	3.05 - 3.35	13-Oct-21	-	<0.018	-	-	-	-	-	-	-	-	-	-	<0.080	-	-	-	-	-	<0.030
BH21-6	21-6-3	1.52 - 2.29	13-Oct-21	-	<0.018	-	-	-	-	-	-	-	-	-	-	<0.080	-	-	-	-	-	<0.030
BH21-7	21-7-5	3.66 - 3.96	13-Oct-21	-	<0.018	-	-	-	-	-	-	-	-	-	-	<0.080	-	-	-	-	-	<0.030

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Medium-Fine Textured Soils*

8.1.5 Ground Water Data

8.1.5.1 PHCs with BTEX

Ground Water Analytical Results: Petroleum Hydrocarbons (PHCs) and Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

			PHCs					BTEX			
			F1 (C6-C10)	F1-BTEX	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)	Benzene	Toluene	Ethylbenzene	Xylenes (Total)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
O.Reg. 153/04 MECP Guideline (2011), All Types of Property Use, Medium-Fine Textured Soil, Non-Potable Ground Water Condition			750	750	150	500	500	430	18000	2300	4200
Sample Location	Sample ID	Sample Date									
MW22-1	22-1	21-Apr-22	<25	-	<100	<100	<100	<0.5	<0.5	<0.5	<0.5
MW22-3	22-3	21-Apr-22	<25	-	<100	<100	<100	<0.5	<0.5	<0.5	<0.5
MW22-3	22-3D	21-Apr-22	<25	-	<100	<100	<100	<0.5	<0.5	<0.5	<0.5
MW22-4	22-4	20-Apr-22	<25	-	<100	<100	<100	<0.5	<0.5	<0.5	<0.5
MW22-5	22-5	20-Apr-22	<25	-	<100	<100	<100	<0.5	<0.5	<0.5	<0.5
MW22-5	22-5D	20-Apr-22	<25	-	<100	<100	<100	<0.5	<0.5	<0.5	<0.5
MW22.6	22-6	28-Apr-22	<25	-	<100	<100	<100	<0.5	<0.5	<0.5	<0.5
MW21-1	21-1	22-Oct-21	<25	<25	<100	<250	<250	<0.50	<0.50	<0.50	<0.50
MW21-2	21-2	22-Oct-21	<25	<25	<100	<250	<250	<0.50	<0.50	<0.50	<0.50
MW21-2D	21-2D	22-Oct-21	<25	<25	<100	<250	<250	<0.50	<0.50	<0.50	<0.50
MW21-3	21-3	22-Oct-21	<25	<25	<100	<250	<250	<0.50	<0.50	<0.50	<0.50
MW21-3D	21-3D	22-Oct-21	<25	<25	<100	<250	<250	<0.50	<0.50	<0.50	<0.50
MW21-4	21-4	22-Oct-21	<25	<25	<100	<250	<250	<0.50	<0.50	<0.50	<0.50
MW21-5	21-5	22-Oct-21	<25	<25	<100	<250	<250	<0.50	<0.50	<0.50	<0.50

Notes:

1. - *In guideline row(s) denotes no criteria for that parameter*
2. - *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. **BOLD** *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for All Types of Property Uses with Medium-Fine Textured Soils*
6. * *F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result*

8.1.5.2 Metals

Ground Water Analytical Results: Metals

			Metals																			
			Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved	Beryllium (Be)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Chromium (Cr)-Dissolved	Chromium VI (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Lead (Pb)-Dissolved	Molybdenum (Mo)-Dissolved	Mercury (Hg) - Dissolved	Nickel (Ni)-Dissolved	Selenium (Se)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Thallium (Tl)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
O.Reg. 153/04 MECP Guideline (2011), All Types of Property Use, Medium-Fine Textured Soil, Non-Potable Ground Water Condition			20000	1900	29000	67	45000	2.7	810	140	66	87	25	9200	2.8	490	63	1.5	2300000	510	420	250	1100
Sample Location	Sample ID	Sample Date																					
MW22-4	22-4	20-Apr-22	<0.5	1.3	108	<0.5	1300	<0.2	<1.0	<10	<0.5	1.8	<0.2	3.8	<0.1	<1.0	<1.0	0.4	157000	<0.5	1.9	0.6	<5.0
MW22-5	22-5	20-Apr-22	<0.5	<1.0	107	<0.5	58.4	<0.2	<1.0	<10	<0.5	1.8	<0.2	2.4	<0.1	<1.0	<1.0	1	737000	<0.5	1.3	1	<5.0
MW22-5	22-5D	20-Apr-22	<0.5	<1.0	114	<0.5	34.1	<0.2	<1.0	<10	<0.5	2	<0.2	2.2	<0.1	<1.0	<1.0	0.3	817000	<0.5	1.4	1.3	<5.0
MW22-6	22-6	28-Apr-22	<0.5	3.2	86.5	<0.5	747	<0.2	<1.0	<10	<0.5	0.8	<0.2	178	<0.1	<1.0	2.7	<0.2	702000	<0.5	0.4	49.4	<5.0
MW21-1	21-1	22-Oct-21	<1.0	1.5	280	<1.0	210	<0.050	<5.0	-	2.4	<2.0	<0.50	6.69	-	<5.0	<0.50	<0.50	355000	<0.10	7.95	<5.0	10
MW21-3	21-3	22-Oct-21	<1.0	1.9	152	<1.0	750	<0.050	<5.0	-	1.8	<2.0	<0.50	11.1	-	<5.0	<0.50	<0.50	537000	<0.10	6.9	<5.0	<10
MW21-3D	21-3	22-Oct-21	<1.0	1.9	149	<1.0	720	<0.050	<5.0	-	1.7	<2.0	<0.50	10.6	-	<5.0	<0.50	<0.50	523000	<0.10	6.78	<5.0	<10
MW21-4	21-4	22-Oct-21	<1.0	<1.0	129	<1.0	120	<0.050	<5.0	-	<1.0	<2.0	<0.50	2.72	-	<5.0	<0.50	<0.50	276000	<0.10	6.57	<5.0	<10
MW21-5	21-5	22-Oct-21	<1.0	<1.0	208	<1.0	1080	<0.050	<5.0	-	2	<2.0	<0.50	13.1	-	<5.0	<0.50	<0.50	789000	<0.10	5.45	<5.0	<10

Notes:

1. - *In guideline row(s) denotes no criteria for that parameter*
2. - *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. **BOLD** *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for All Types of Property Uses with Medium-Fine Textured Soils*

8.1.5.3 VOCs

Ground Water Analytical Results: Volatile Organic Compounds (VOCs)

VOCs (part 1 of 2)

Sample Location	Sample ID	Sample Date	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Dibromochloromethane	Chloroform	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	Methylene Chloride
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
O.Reg. 153/04 MECP Guideline (2011), All Types of Property Use, Medium-Fine Textured Soil, Non-Potable Ground Water Condition			130000	430	85000	770	56	8.4	630	82000	22	0.83	9600	9600	67	4400	3100	12	17	17	17	5500
MW22-1	22-1	21-Apr-22	<5.0	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
MW22-3	22-3	21-Apr-22	<5.0	1.3	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
MW22-3	22-3D	21-Apr-22	<5.0	1	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
MW22-4	22-4	20-Apr-22	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW22-5	22-5	20-Apr-22	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW22-5	22-5D	20-Apr-22	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW22.6	22-6	28-Apr-22	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP BLANK	TRIP BLANK	20-Apr-22	<5.0	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
MW21-1	21-1	22-Oct-21	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW21-2	21-2	22-Oct-21	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
MW21-2	21-2D	22-Oct-21	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<2.0	<1.0	<0.20	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
MW21-3	21-3	22-Oct-21	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW21-3D	21-3D	22-Oct-21	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW21-4	21-4	22-Oct-21	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW21-5	21-5	22-Oct-21	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

VOCs (part 2 of 2)

Sample Location	Sample ID	Sample Date	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	1,3-Dichloropropene (cis & trans)	Ethylbenzene	n-Hexane	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	MTBE	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	Vinyl chloride	Xylenes (Total)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
O.Reg. 153/04 MECP Guideline (2011), All Types of Property Use, Medium-Fine Textured Soil, Non-Potable Ground Water Condition			140	-	-	45	2300	520	1500000	580000	1400	9100	28	15	17	18000	6700	30	17	2500	1.7	4200
MW22-1	22-1	21-Apr-22	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<5.0	<5.0	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5
MW22-3	22-3	21-Apr-22	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<5.0	<5.0	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5
MW22-3	22-3D	21-Apr-22	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<5.0	<5.0	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5
MW22-4	22-4	20-Apr-22	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5
MW22-5	22-5	20-Apr-22	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5
MW22-5	22-5D	20-Apr-22	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5
MW22.6	22-6	28-Apr-22	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5
TRIP BLANK	TRIP BLANK	20-Apr-22	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<5.0	<5.0	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5
MW21-1	21-1	22-Oct-21	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5
MW21-2	21-2	22-Oct-21	<0.50	<0.30	<0.30	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50
MW21-2	21-2D	22-Oct-21	<0.50	<0.30	<0.30	<0.50	<0.50	<0.50	<20	<20	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50
MW21-3	21-3	22-Oct-21	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5
MW21-3D	21-3D	22-Oct-21	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5
MW21-4	21-4	22-Oct-21	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5
MW21-5	21-5	22-Oct-21	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	<0.5

Notes:

1. - *In guideline row(s) denotes no criteria for that parameter*
2. - *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for All Types of Property Uses with Medium-Fine Textured Soils*

8.1.6 Sediment Data

Sediment sampling was not part of this investigation, as a water body is not on the Phase Two Property.

8.1.7 Soil and Ground Water Maximum Concentration Data

8.1.7.1 Soil Maximum Concentration Data

Parameter	MECP Table 3 RPI SCS (µg/g)	Maximum Soil Concentration (µg/g)	Location of Maximum Concentration	Sample Depth (m)
VOCs - BTEX				
Benzene	0.17	<0.02	Multiple Locations	0.00 – 3.66
Ethylbenzene	15	<0.05	Multiple Locations	0.00 – 3.66
Toluene	6	<0.05	Multiple Locations	0.00 – 3.66
Xylene Mixture	25	<0.05	Multiple Locations	0.00 – 3.66
Metals				
Barium	390	126	BH21-6-2	1.22 – 1.52
Beryllium	5	0.95	BH21-6-2	1.22 – 1.52
Boron (total)	120	11	BH21-1-1	0.00 – 0.762
Boron (Hot Water Soluble)*	1.5	<0.5	Multiple Locations	1.52 – 2.29
Cadmium	1.2	<0.50	Multiple Locations	0.00 – 3.05
Chromium Total	160	29.9	BH21-6-2	1.22 – 1.52
Chromium (VI)	10	<0.2	Multiple Locations	1.52 – 2.29
Cobalt	22	14.2	BH21-6-2	1.22 – 1.52
Copper	180	30.9	BH21-7-2	0.914 – 1.52
Lead	120	18.1	BH21-6-2	1.22 – 1.52
Molybdenum	6.9	<1.0	Multiple Locations	0.00 – 3.05
Nickel	130	29.5	BH21-6-2	1.22 – 1.52
Silver	25	<0.30	Multiple Locations	1.52 – 3.05
Thallium	1	<1.0	Multiple Locations	1.52 – 3.05
Uranium	23	<1.0	Multiple Locations	0.00 – 3.05
Vanadium	86	39.1	BH21-6-2	1.22 – 1.52
Zinc	340	109	BH22-5-4	2.29 – 3.05
Metals – Hydride Forming				
Antimony	7.5	<1.0	Multiple Locations	0.00 – 3.05
Arsenic	18	6.6	BH21-6-2	1.22 – 1.52
Selenium	2.4	<1.0	Multiple Locations	0.00 – 3.05
PHCs				
Petroleum Hydrocarbons F1	65	<7	Multiple Locations	0.00 – 3.66
Petroleum Hydrocarbons F1- BTEX	65	<5	Multiple Locations	0.00 – 3.66

Parameter	MECP Table 3 RPI SCS (µg/g)	Maximum Soil Concentration (µg/g)	Location of Maximum Concentration	Sample Depth (m)
Petroleum Hydrocarbons F2	150	16	BH22-6-5	3.05 – 3.66
Petroleum Hydrocarbons F3	1300	180	BH22-6-5	3.05 – 3.66
Petroleum Hydrocarbons F4	5600	431	BH22-6-5	3.05 – 3.66
VOCs – Trihalomethanes				
Bromodichloromethane	13	<0.050	Multiple Locations	0.00 – 3.35
Bromoform	0.26	<0.050	Multiple Locations	0.00 – 3.35
Dibromochloromethane	9.4	<0.050	Multiple Locations	0.00 – 3.35
VOCs				
Acetone	28	<0.50	Multiple Locations	0.00 – 3.35
Bromomethane	0.05	<0.050	Multiple Locations	0.00 – 3.35
Carbon Tetrachloride	0.12	<0.050	Multiple Locations	0.00 – 3.35
Chlorobenzene	2.7	<0.050	Multiple Locations	0.00 – 3.35
Chloroform	0.17	<0.050	Multiple Locations	0.00 – 3.35
Dichlorobenzene, 1,2-	4.3	<0.050	Multiple Locations	0.00 – 3.35
Dichlorobenzene, 1,3-	6	<0.050	Multiple Locations	0.00 – 3.35
Dichlorobenzene, 1,4-	0.097	<0.050	Multiple Locations	0.00 – 3.35
Dichlorodifluoromethane	25	<0.050	Multiple Locations	0.00 – 3.35
Dichloroethane, 1,1-	11	<0.050	Multiple Locations	0.00 – 3.35
Dichloroethane, 1,2-	0.05	<0.050	Multiple Locations	0.00 – 3.35
Dichloroethylene, 1,1-	0.05	<0.050	Multiple Locations	0.00 – 3.35
Dichloroethylene , 1,2-cis-	30	<0.050	Multiple Locations	0.00 – 3.35
Dichloroethylene, 1,2-trans-	0.75	<0.050	Multiple Locations	0.00 – 3.35
Dichloropropane, 1,2-	0.085	<0.050	Multiple Locations	0.00 – 3.35
Dichloropropene, 1,3-	0.083	<0.042	Multiple Locations	0.00 – 3.35
Hexane (n)	34	<0.050	Multiple Locations	0.00 – 3.35
Methyl Ethyl Ketone	44	<0.50	Multiple Locations	0.00 – 3.35
Methyl Isobutyl Ketone	4.3	<0.50	Multiple Locations	0.00 – 3.35
Methyl tert-Butyl Ether (MTBE)	1.4	<0.050	Multiple Locations	0.00 – 3.35
Methylene Chloride	0.96	<0.050	Multiple Locations	0.00 – 3.35
Styrene	2.2	<0.050	Multiple Locations	0.00 – 3.35
Tetrachloroethane, 1,1,1,2-	0.05	<0.050	Multiple Locations	0.00 – 3.35
Tetrachloroethane, 1,1,2,2-	0.05	<0.050	Multiple Locations	0.00 – 3.35
Tetrachloroethylene	2.3	<0.050	Multiple Locations	0.00 – 3.35

Parameter	MECP Table 3 RPI SCS (µg/g)	Maximum Soil Concentration (µg/g)	Location of Maximum Concentration	Sample Depth (m)
Trichloroethane, 1,1,1-	3.4	<0.050	Multiple Locations	0.00 – 3.35
Trichloroethane, 1,1,2-	0.05	<0.050	Multiple Locations	0.00 – 3.35
Trichloroethylene	0.52	<0.050	Multiple Locations	0.00 – 3.35
Trichlorofluoromethane	5.8	<0.050	Multiple Locations	0.00 – 3.35
Vinyl Chloride	0.022	<0.020	Multiple Locations	0.00 – 3.35

Note:

1. ND represents Non-Detect.
2. Bold entries exceed the Criteria.
3. Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Medium-Fine Textured Soils.

8.1.7.2 Ground Water Maximum Concentration Data

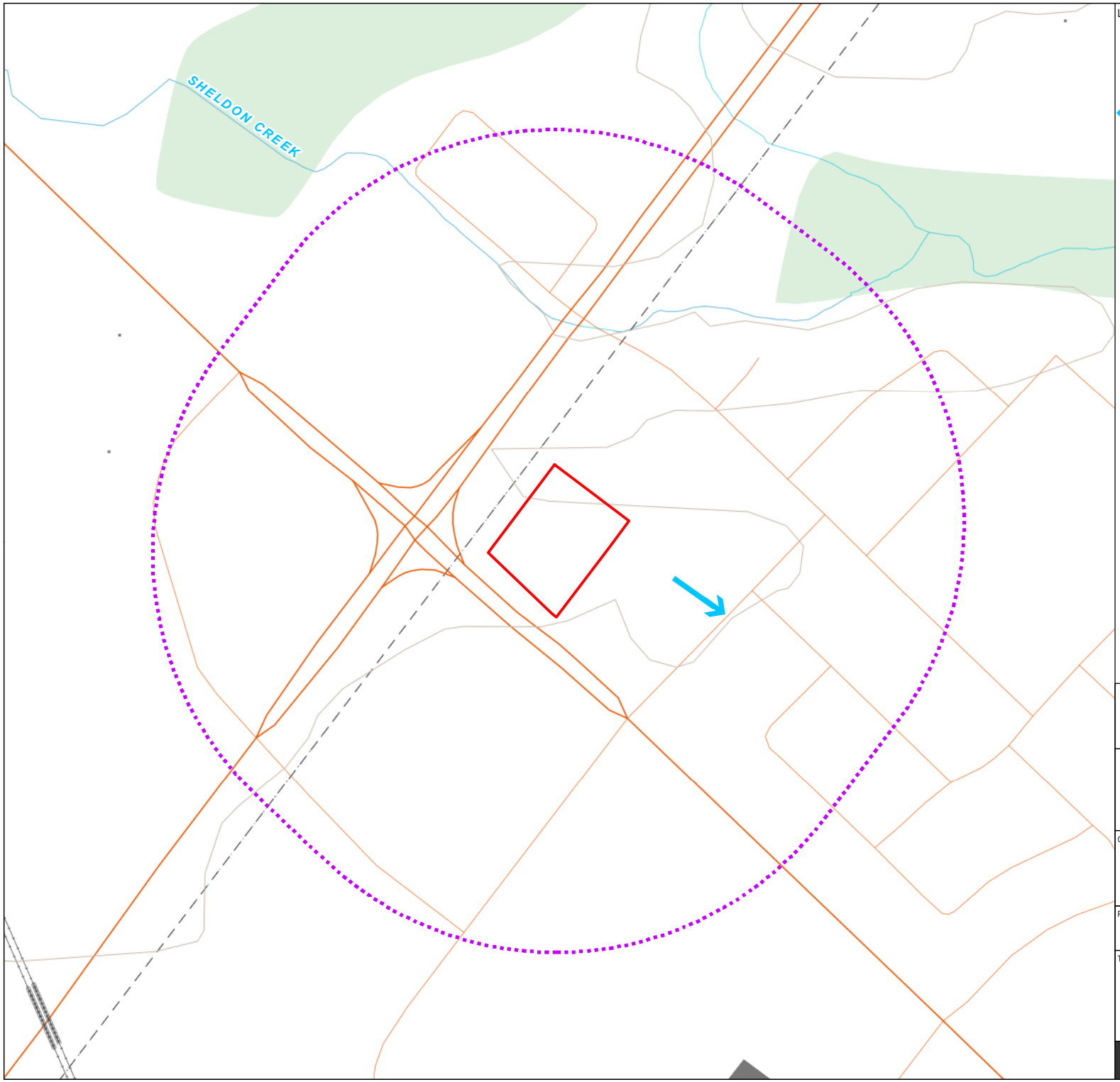
Parameter	MECP Table 3 RPI SCS (µg/L)	Maximum Ground Water Concentration (µg/L)	Location of Maximum Concentration
VOCs - BTEX			
Benzene	430	<0.50	Multiple Locations
Ethylbenzene	2300	<0.50	Multiple Locations
Toluene	18000	<0.50	Multiple Locations
Xylene Mixture	4200	<0.50	Multiple Locations
Metals			
Barium	29000	280	MW21-1
Beryllium	67	<1.0	Multiple Locations
Boron (total)	45000	1300	MW22-4
Cadmium	2.7	<0.2	Multiple Locations
Chromium Total	810	<5.0	Multiple Locations
Cobalt	66	2.4	MW21-1
Copper	87	<2.0	Multiple Locations
Lead	25	<0.50	Multiple Locations
Molybdenum	9200	178	MW22-6
Nickel	490	<5.0	Multiple Locations
Silver	1.5	1	MW22-5
Thallium	510	<0.5	Multiple Locations
Uranium	420	7.95	MW21-1
Vanadium	250	49.4	MW22-6
Zinc	1100	10	MW21-1
Metals – Hydride Forming			
Antimony	20000	<1.0	Multiple Locations
Arsenic	1900	1.9	MW21-3
Selenium	63	2.7	MW22-6
PHCs			
Petroleum Hydrocarbons F1	750	<25	Multiple Locations
Petroleum Hydrocarbons F1-BTEX	750	<25	Multiple Locations
Petroleum Hydrocarbons F2	150	<100	Multiple Locations
Petroleum Hydrocarbons F3	500	<250	Multiple Locations
Petroleum Hydrocarbons F4	500	<250	Multiple Locations
VOCs – Trihalomethanes			

Parameter	MECP Table 3 RPI SCS (µg/L)	Maximum Ground Water Concentration (µg/L)	Location of Maximum Concentration
Bromodichloromethane	85000	<2.0	Multiple Locations
Bromoform	770	<5.0	Multiple Locations
Dibromochloromethane	82000	<2.0	Multiple Locations
VOCs			
Acetone	130000	<30	Multiple Locations
Bromomethane	56	<0.50	Multiple Locations
Carbon Tetrachloride	8.4	<0.20	Multiple Locations
Chlorobenzene	630	<0.50	Multiple Locations
Chloroform	22	<1.0	Multiple Locations
Dichlorobenzene, 1,2-	9600	<0.50	Multiple Locations
Dichlorobenzene, 1,3-	9600	<0.50	Multiple Locations
Dichlorobenzene, 1,4-	67	<0.50	Multiple Locations
Dichlorodifluoromethane	4400	<2.0	Multiple Locations
Dichloroethane, 1,1-	3100	<0.50	Multiple Locations
Dichloroethane, 1,2-	12	<0.50	Multiple Locations
Dichloroethylene, 1,1-	17	<0.50	Multiple Locations
Dichloroethylene , 1,2-cis-	17	<0.50	Multiple Locations
Dichloroethylene, 1,2-trans-	17	<0.50	Multiple Locations
Dichloropropane, 1,2-	140	<0.50	Multiple Locations
Dichloropropene, 1,3-	-	<0.50	Multiple Locations
Hexane (n)	520	<0.50	Multiple Locations
Methyl Ethyl Ketone	1500000	<20	Multiple Locations
Methyl Isobutyl Ketone	58000	<220	Multiple Locations
Methyl tert-Butyl Ether (MTBE)	1400	<2.0	Multiple Locations
Methylene Chloride	5500	<5.0	Multiple Locations
Styrene	9100	<0.50	Multiple Locations
Tetrachloroethane, 1,1,1,2-	28	<0.50	Multiple Locations
Tetrachloroethane, 1,1,2,2-	15	<0.50	Multiple Locations
Tetrachloroethylene	17	<0.50	Multiple Locations
Trichloroethane, 1,1,1-	6700	<0.50	Multiple Locations
Trichloroethane, 1,1,2-	30	<0.50	Multiple Locations
Trichloroethylene	17	<0.50	Multiple Locations
Trichlorofluoromethane	2500	<5.0	Multiple Locations

Parameter	MECP Table 3 RPI SCS (µg/L)	Maximum Ground Water Concentration (µg/L)	Location of Maximum Concentration
Vinyl Chloride	1.7	<0.50	Multiple Locations
Inorganics			
Sodium	2300000	789000	MW21-5

Note:

1. ND represents Non-Detect.
2. Bold entries exceed the Criteria.
3. Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with All-Textured Soils.



LEGEND:

- Phase Two Property
- Phase One Study Area
- Regionally Inferred Ground Water Flow Direction

Basemap: Toporama web map service
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0 50 100
metres

N

PROJECT NO.	1901204	REVISION:	1
DATE:	Feb 13, 2022	SCALE:	1:4000
DRAWN:	CV	DATUM:	NAD 1983
CHECKED:	SB	PROJECTION:	UTM zone 17

CLIENT:
1989 Appleby Latch Limited Partnership

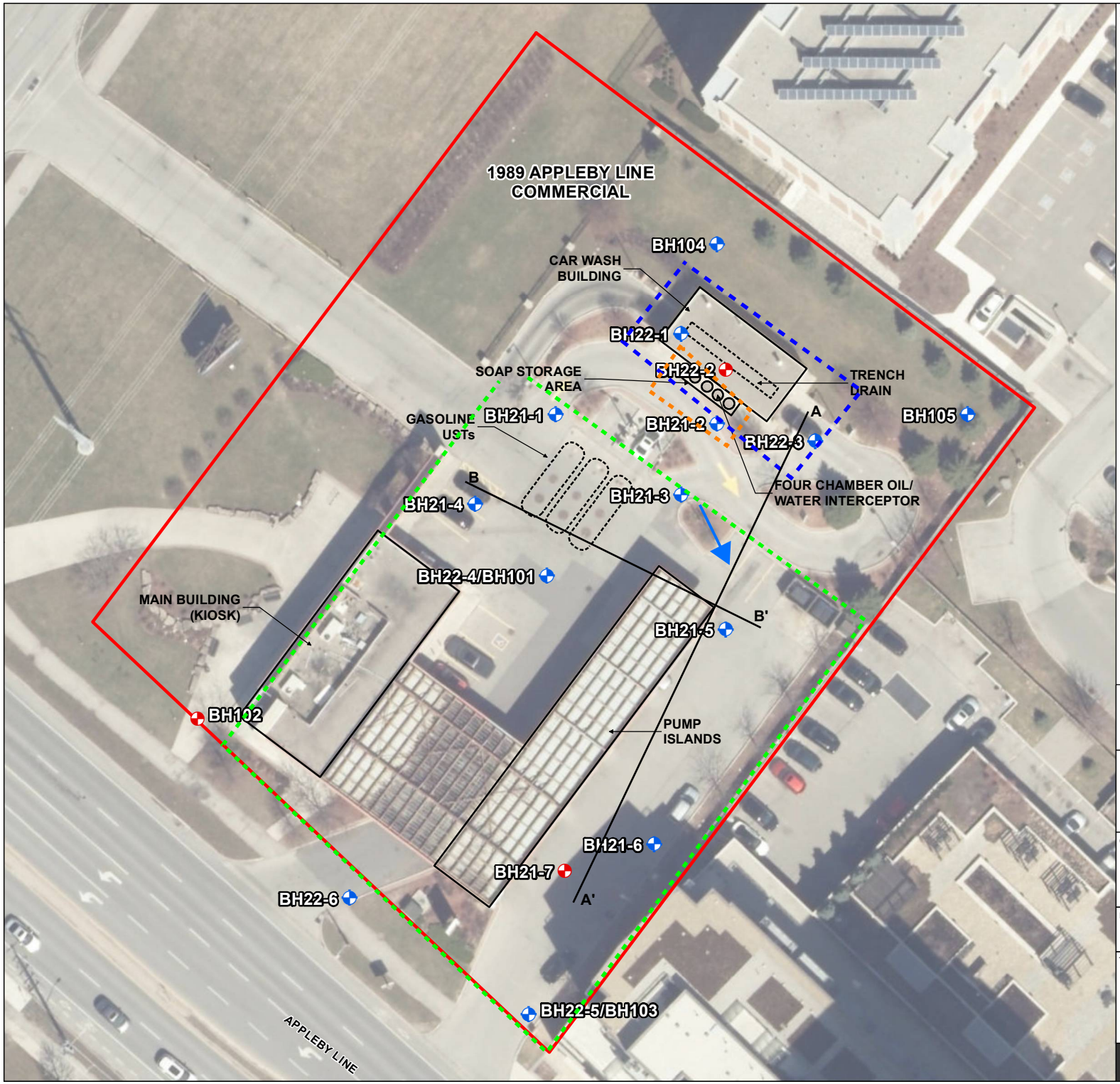
PREPARED BY:
Palmer

PROJECT:
1989 Appleby Line

TITLE:
Areas of Natural Significance and Water Bodies

Figure 8.2.1

Document Path: G:\Shared drives\Projects 2019\19012 - Latch Developments Ltd\1901204 - 1989 Appleby Line\GIS\1_Workspace\Task 2 - ESA Phase Two Figures\1901204_8.2.1-1_Areas of Natural Significance.mxd



LEGEND:

- Phase Two Property
- Locally Inferred Ground Water Flow Direction
- Borehole Location
- Monitoring Well Location
- APEC 1: Gasoline Service Station with three 46,400 L fuel Underground Storage Tanks (UST) and ten fuel pumps
- APEC 2: Car Wash Operations
- APEC 3: One four chamber oil/water interceptor
- A A' Cross Section Location

Imagery provided by Esri basemap service

0 10 20
metres

N

PROJECT NO.	1901204	REVISION:	2
DATE:	May 19, 2022	SCALE:	1:600
DRAWN:	CV	DATUM:	NAD 1983
CHECKED:	SB	PROJECTION:	UTM zone 17

CLIENT: 1989 Appleby Latch Limited Partnership

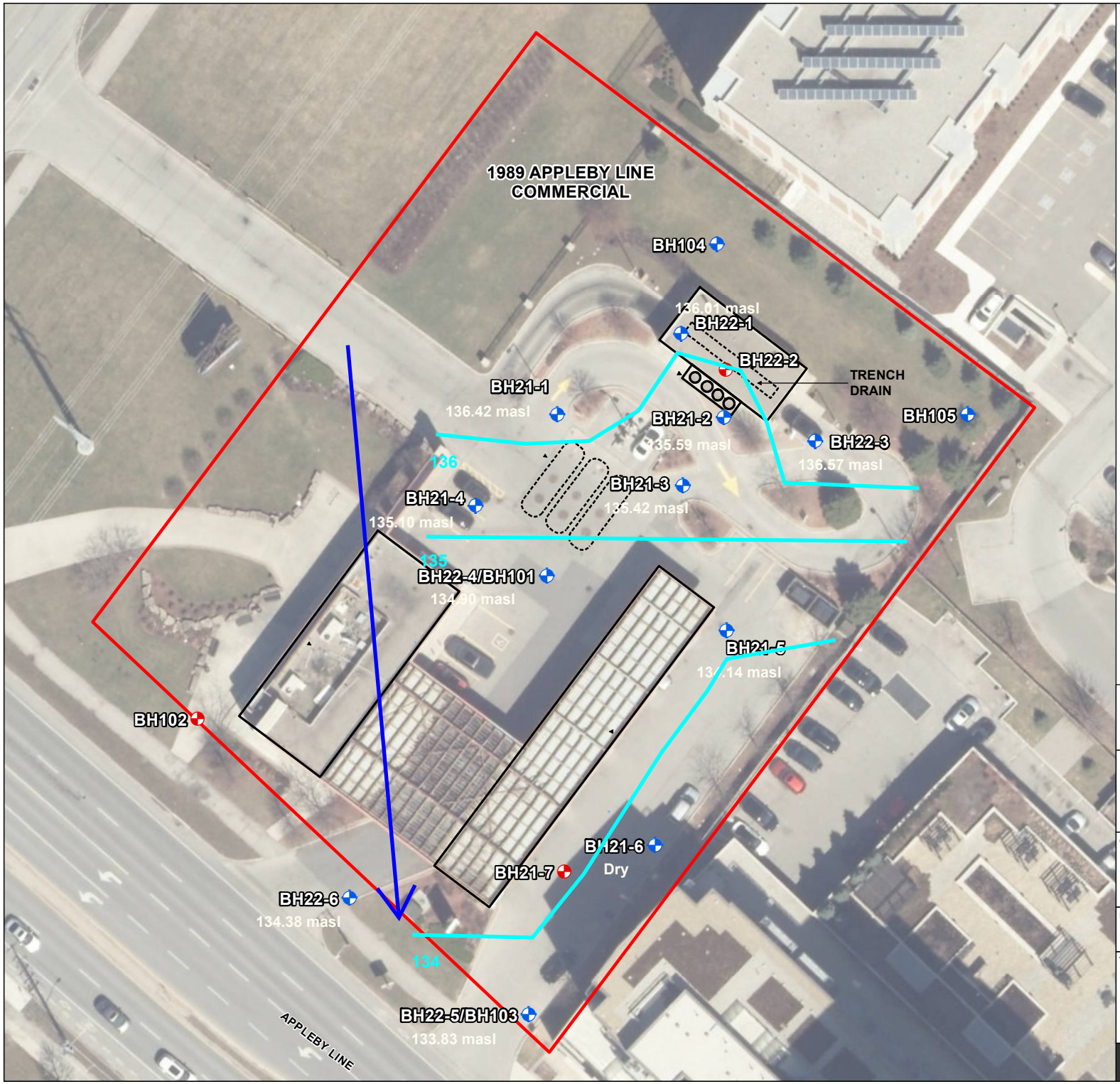
PREPARED BY: Palmer

PROJECT: 1989 Appleby Line

TITLE: **Property Before Actions Taken to Reduce the Concentration of Contaminants**

Figure 8.2.2

Document Path: G:\Shared drives\Projects 2019\19012 - Latch Developments Ltd\1901204 - 1989 Appleby Line\GIS\1_Workspace\Task 2 - ESA Phase Two Figures\1901204_Dr2-2_Borehole Location Plan.mxd



LEGEND:

- Phase Two Property
- Groundwater Elevation Contour
- Locally Inferred Ground Water Flow Direction
- Borehole Location
- Monitoring Well Location

Imagery provided by Esri basemap service

0 10 20
metres

N

PROJECT NO.	1901204	REVISION:	2
DATE:	May 19, 2022	SCALE:	1:600
DRAWN:	CV	DATUM:	NAD 1983
CHECKED:	SB	PROJECTION:	UTM zone 17

CLIENT: 1989 Appleby Latch Limited Partnership

PREPARED BY: Palmer

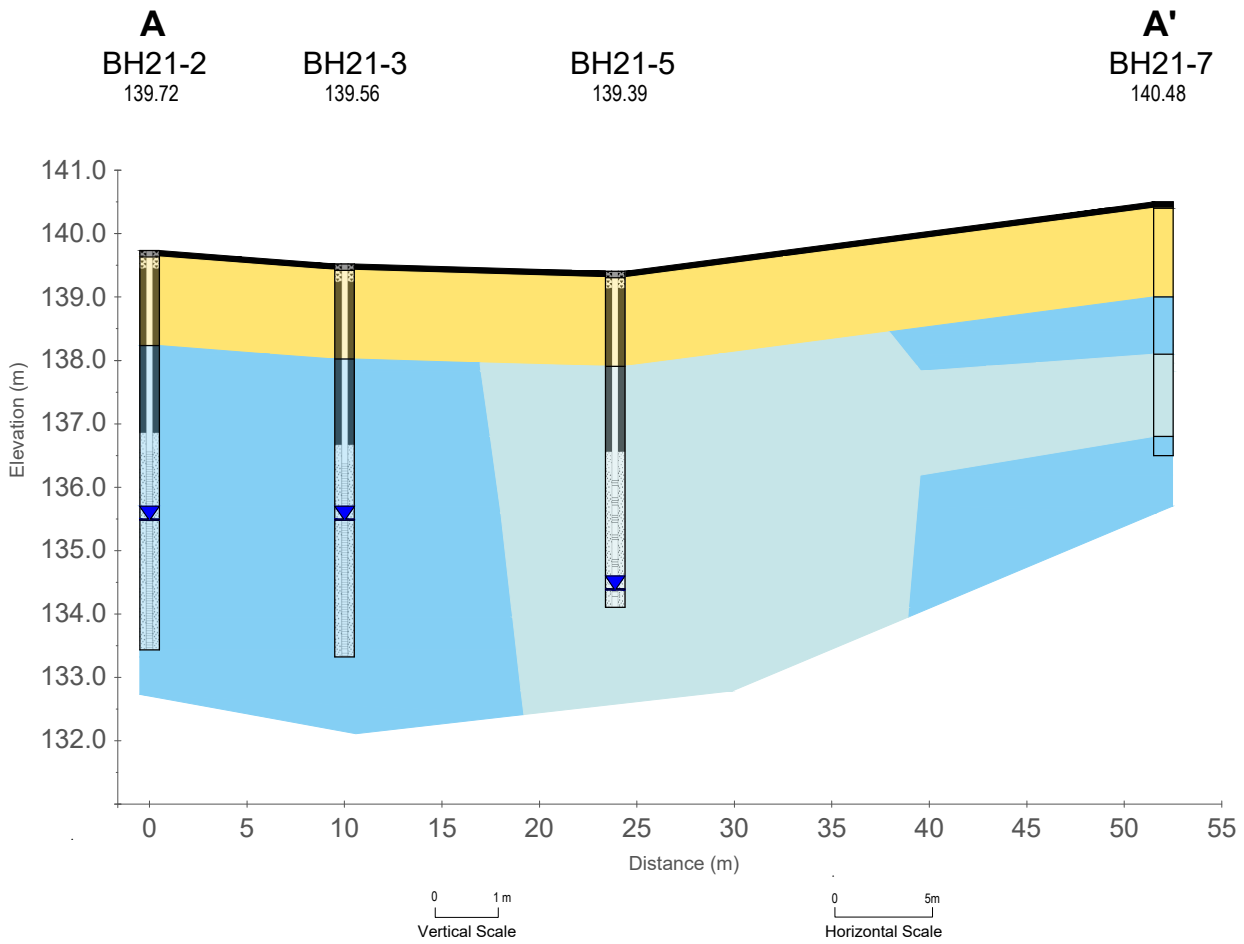
PROJECT: 1989 Appleby Line

TITLE:

Interpreted Contours of Ground Water Elevations

Figure 8.2.3

Document Path: G:\Shared drives\Projects 2019\19012 - Latch Developments Ltd\1901204 - 1989 Appleby Line\GIS\1_Workspace\Task 2 - ESA Phase Two Figures\1901204_8.2.3-2_Interpreted Contours of Ground Water Elevations.mxd



LEGEND:

SOILS

- Asphalt
- Fill
- Clayey Silt
- Silty Clay

WELL DETAILS

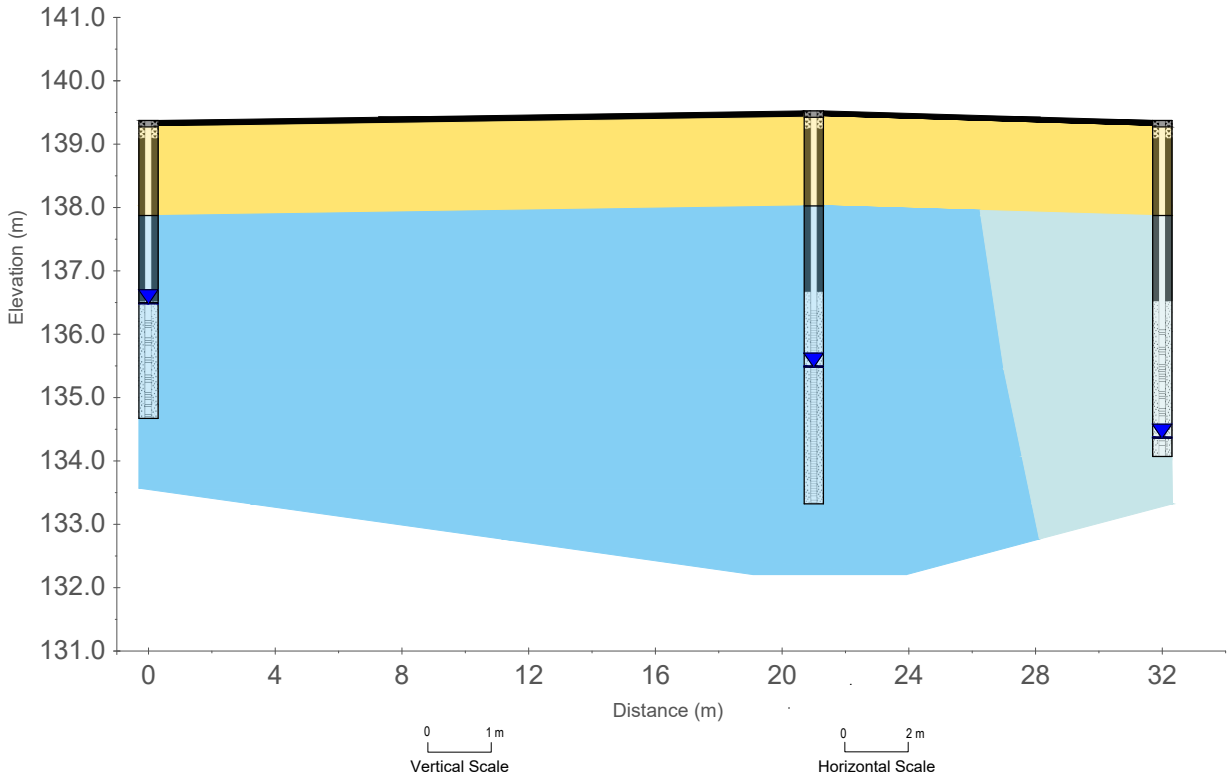
- Sand
- Concrete
- Well Screen
- Bentonite
- Water Level

CLIENT: 1989 Appleby Latch Limited Partnership		PROJECT NO. 1901204	FIGURE NO. **XA**
DRAWN: CV	APPROVED: SB	TITLE:	**Cross Section A-A'**
DATE: 2/13/2022	SCALE: As shown	PROJECT:	1989 Appleby Line
PRINT SIZE: 8.5" x 11"	REVISION: 1	Palmer™	74 Berkeley Street Toronto, Ontario M5A 2W7

B
BH21-4
139.37

BH21-3
139.56

B'
BH21-5
139.39



LEGEND:

SOILS

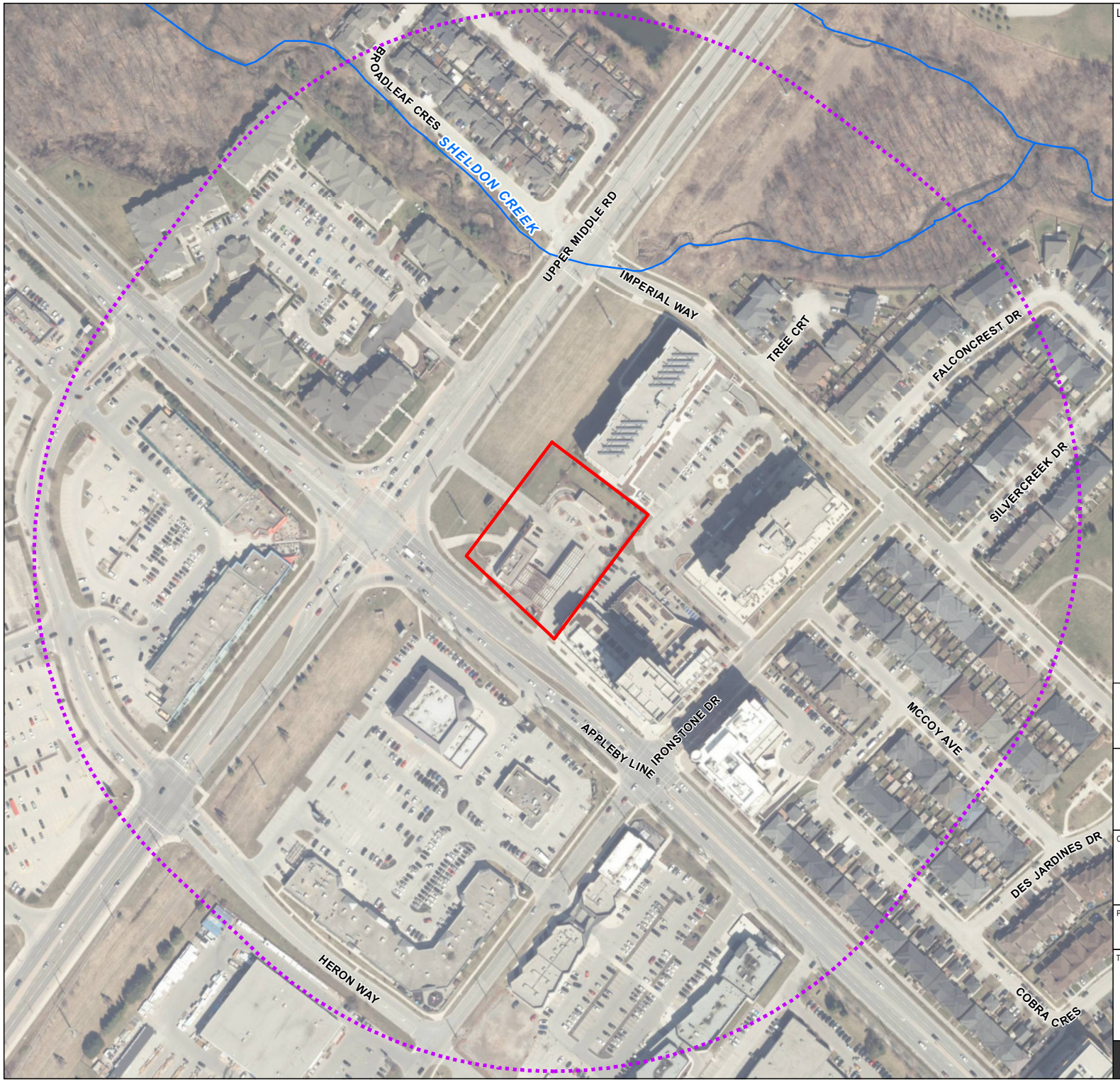
- Asphalt
- Fill
- Clayey Silt
- Silty Clay

WELL DETAILS

- Sand
- Concrete
- Well Screen
- Bentonite
- Water Level

CLIENT: 1989 Appleby Latch Limited Partnership		PROJECT NO. 1901204	FIGURE NO. **XB**
DRAWN: CV	APPROVED: SB	TITLE:	**Cross Section B-B'**
DATE: 2/13/2022	SCALE: As shown	PROJECT:	1989 Appleby Line
PRINT SIZE: 8.5" x 11"	REVISION: 1	Palmer™	74 Berkeley Street Toronto, Ontario M5A 2W7

Drawings

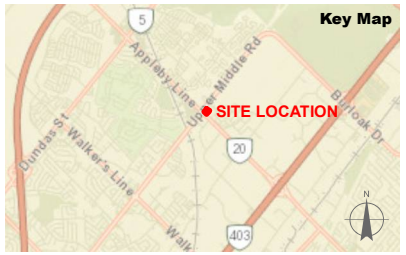


LEGEND:

- Phase Two Property
- Phase One Study Area
- Watercourse[1]

1. LIO/MNRF

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0 50 100

metres

PROJECT NO.	1901204	REVISION:	1
DATE:	Dec 01, 2021	SCALE:	1:3100
DRAWN:	CV	DATUM:	NAD 1983
CHECKED:	SB	PROJECTION:	UTM zone 17

CLIENT: 1989 Appleby Latch Limited Partnership

PREPARED BY: Palmer

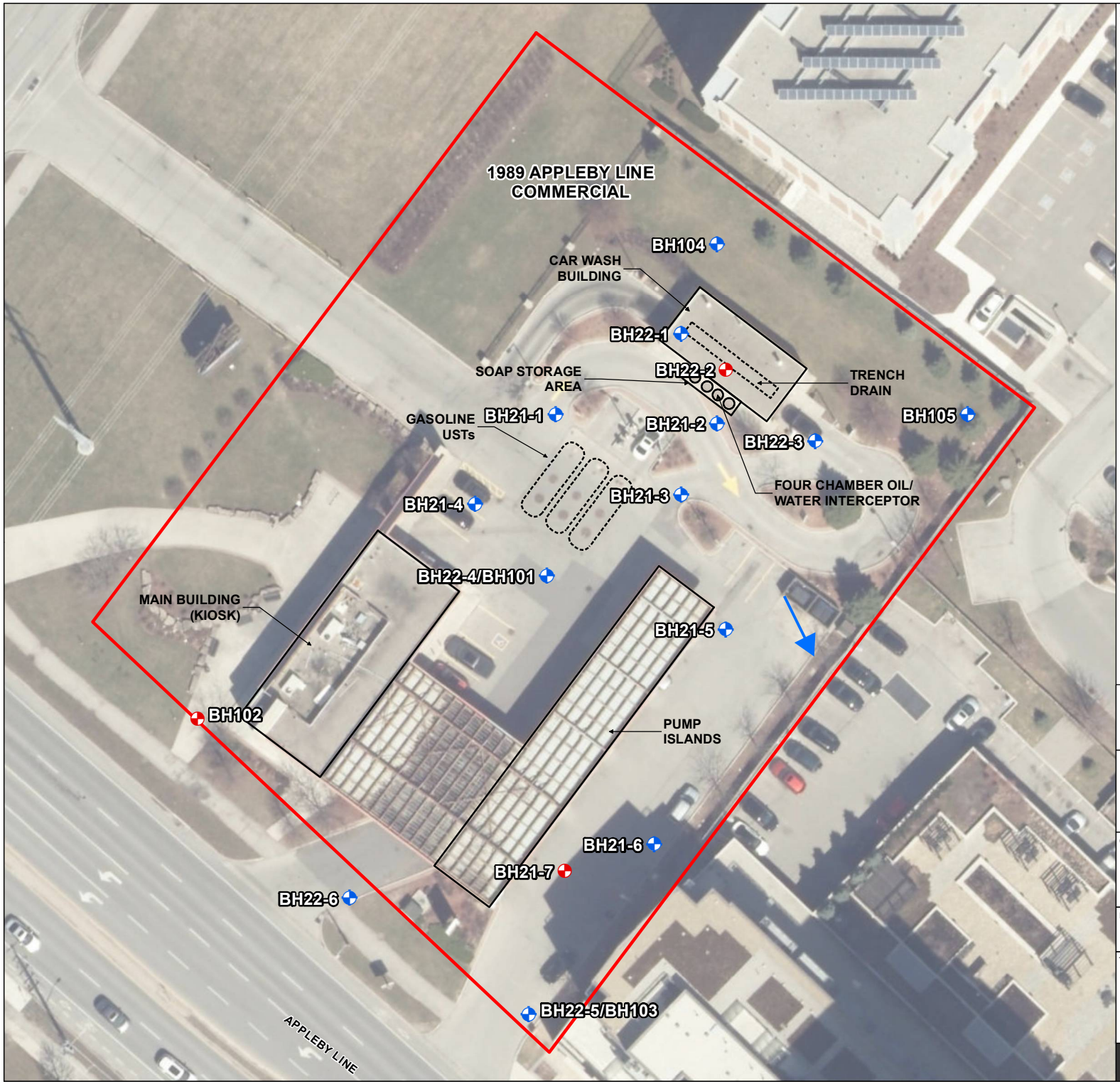
PROJECT: 1989 Appleby Line

TITLE:

Site Location Map

Drawing 1

Document Path: G:\Shared drives\Projects 2019\19012 - Latch Developments Ltd\1901204 - 1989 Appleby Line\GIS\1_Workspace\Task 2 - ESA Phase Two Figures\1901204_Dr1-1_Site Location Map.mxd



LEGEND:

- Phase Two Property
- Locally Inferred Ground Water Flow Direction
- Borehole Location
- Monitoring Well Location

Imagery provided by Esri basemap service

0 10 20
metres

N

PROJECT NO.	1901204	REVISION:	2
DATE:	May 19, 2022	SCALE:	1:600
DRAWN:	CV	DATUM:	NAD 1983
CHECKED:	SB	PROJECTION:	UTM zone 17

CLIENT: 1989 Appleby Latch Limited Partnership

PREPARED BY: Palmer

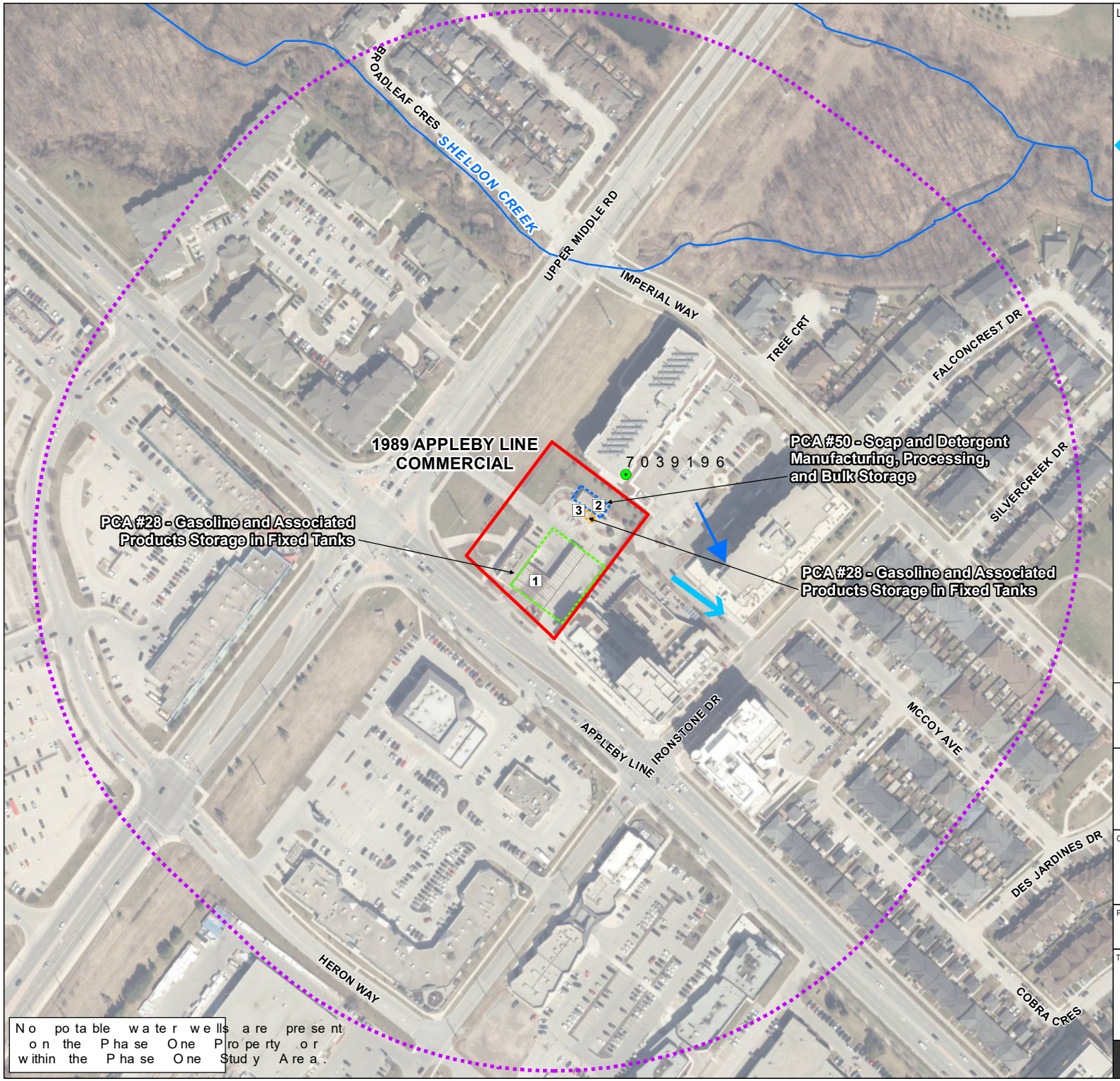
PROJECT: 1989 Appleby Line

TITLE:

Borehole Location Plan

Drawing 2

Document Path: G:\Shared drives\Projects 2019\19012 - Latch Developments Ltd\1901204 - 1989 Appleby Line\GIS\1_Workspace\Task 2 - ESA Phase Two Figures\1901204_Dr2-2_Borehole Location Plan.mxd



No potable water wells are present on the Phase One Property or within the Phase One Study Area.

LEGEND:

- Phase Two Property
- Phase One Study Area
- Watercourse
- Regionally Inferred Ground Water Flow Direction
- Water Well [2]
- 3 PCA of Concern On-site
- APEC 1: Gasoline Service Station with three 46,400 L fuel Underground Storage Tanks (USTs) and ten fuel pumps
- APEC 2: Car Wash Operations
- APEC 3: One four chamber oil/water interceptor

1. LIO/MNRF
2. MECP

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0 50 100
metres

N

PROJECT NO.	1901204	REVISION:	1
DATE:	Feb 13, 2022	SCALE:	1:3100
DRAWN:	CV	DATUM:	NAD 1983
CHECKED:	SB	PROJECTION:	UTM zone 17

CLIENT:
1989 Appleby Latch Limited Partnership

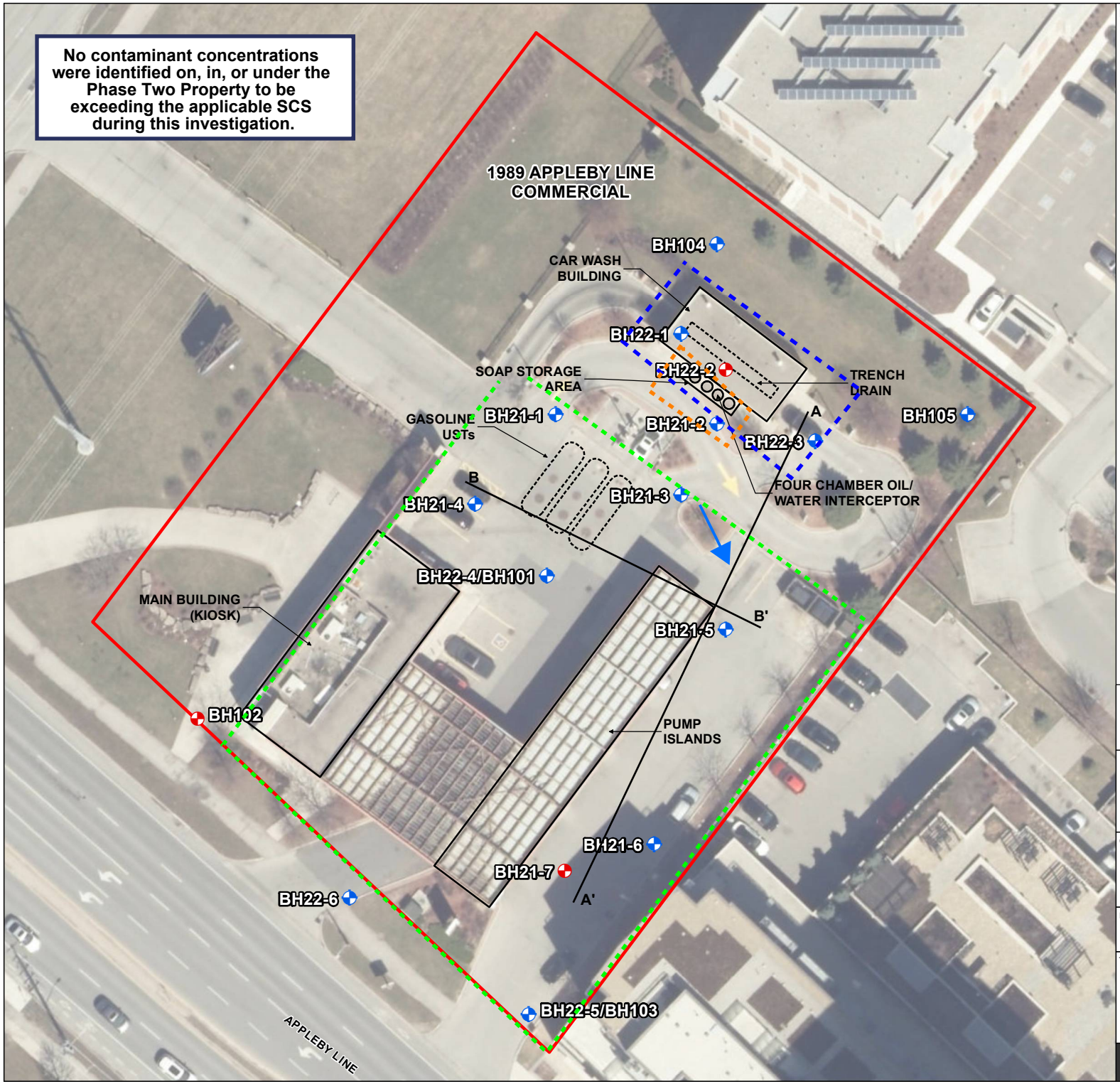
PREPARED BY:
Palmer

PROJECT:
1989 Appleby Line

TITLE:
On-Site and Off-Site Areas of Potential Environmental Concern

Drawing 3

Document Path: G:\Shared drives\Projects\1901204 - 1989 Appleby Line\GIS\1_Workspace\Task 2 - ESA Phase Two Figures\1901204_Latch Developments Ltd\1901204 - 1989 Appleby Line - Phase Two ESA.mxd



LEGEND:

- Phase Two Property
- Locally Inferred Ground Water Flow Direction
- Borehole Location
- Monitoring Well Location
- APEC 1: Gasoline Service Station with three 46,400 L fuel Underground Storage Tanks (UST) and ten fuel pumps
- APEC 2: Car Wash Operations
- APEC 3: One four chamber oil/water interceptor
- A A' Cross Section Location

Imagery provided by Esri basemap service

0 10 20
metres

N

PROJECT NO.	1901204	REVISION:	2
DATE:	May 19, 2022	SCALE:	1:600
DRAWN:	CV	DATUM:	NAD 1983
CHECKED:	SB	PROJECTION:	UTM zone 17

CLIENT: 1989 Appleby Latch Limited Partnership

PREPARED BY: Palmer

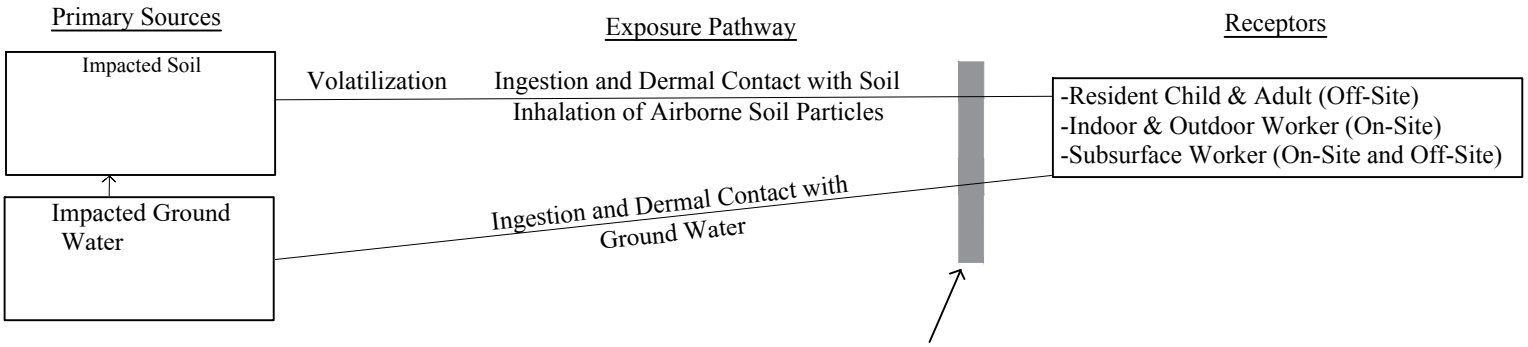
PROJECT: 1989 Appleby Line

TITLE: **Cross-Section Locations**

Drawing 4

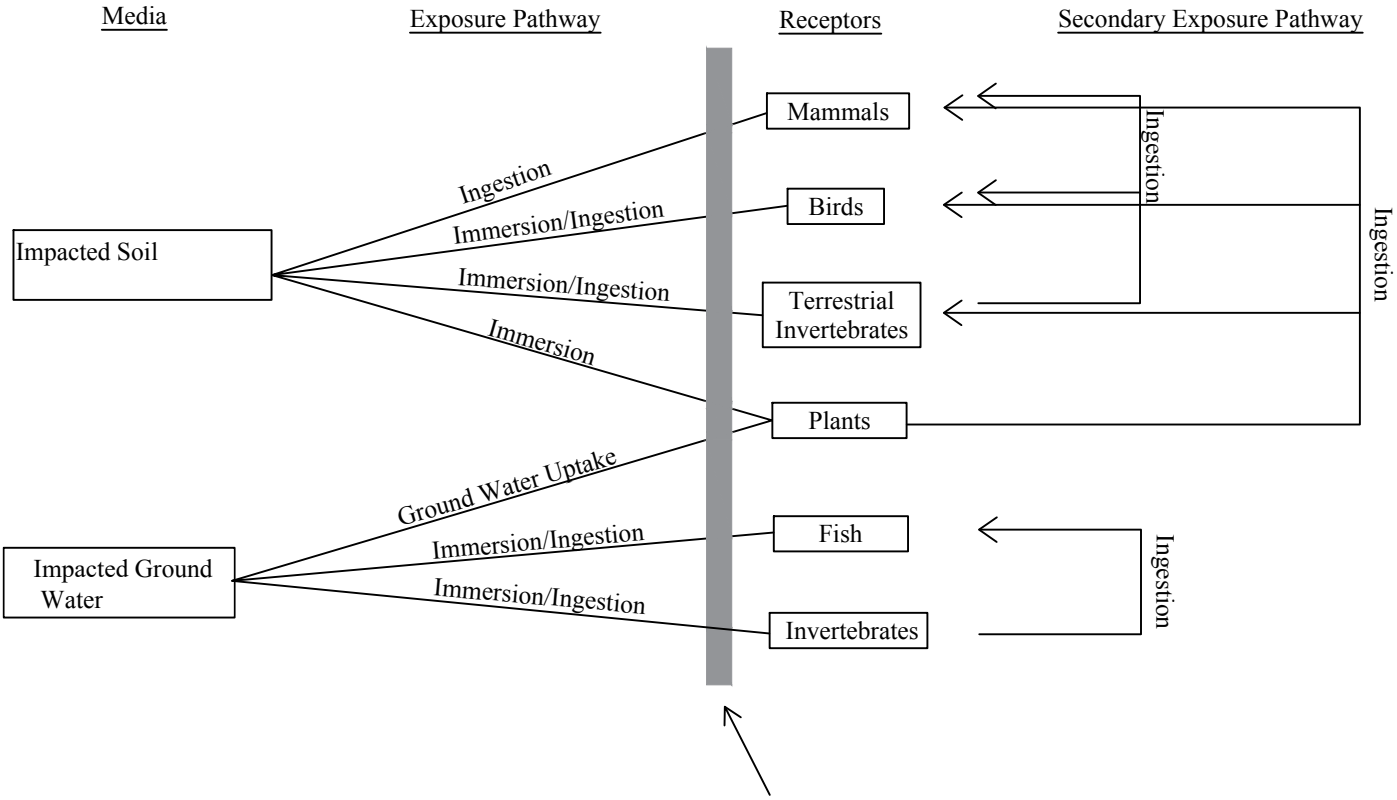
Document Path: G:\Shared drives\Projects 2019\19012 - Latch Developments Ltd\1901204 - 1989 Appleby Line\GIS\1_Workspace\Task 2 - ESA Phase Two Figures\1901204_Dr2-2_Borehole Location Plan.mxd

Human Receptors



Exposure pathways are incomplete as no evidence of soil and/or ground water identified during the Phase Two ESA.

Ecological Receptors

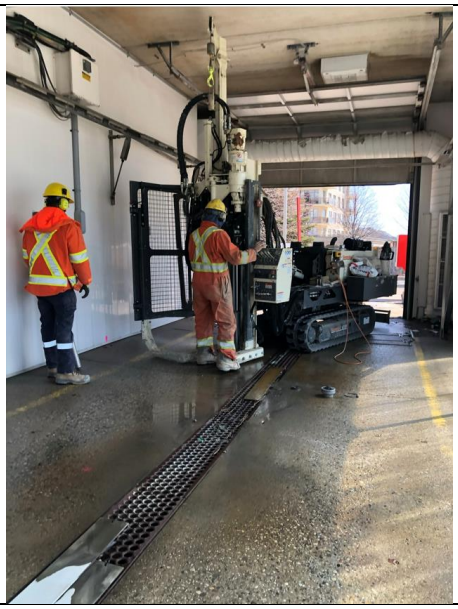
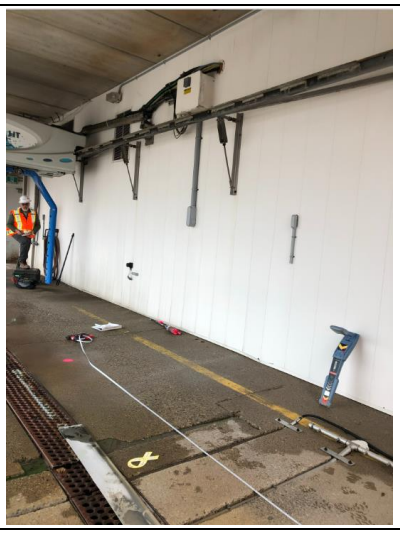


Exposure pathways are incomplete as no evidence of soil and/or ground water identified during the Phase Two ESA.

CLIENT: 1989 Appleby Latch Limited Partnership	PROJECT: 1989 Appleby Line		**Conceptual Model for Human and Ecological Receptors**
PREPARED BY: Palmer	PROJECT NO. 1901204	REVISION: 1-1	
	DATE: May 19, 2022	SCALE: NTS	
	DRAWN: CV	DATUM: NAD 1983	
	CHECKED: CS	PROJECTION: UTM zone 17	**Drawing 5**

Photographs

Photograph Log
1989 Appleby Lane, Burlington
Project No.: 1901204

	
Photograph 1 Photo depicts the 6712 Geoprobe track mounted drill rig drilling inside the car wash building	**Photograph 2** Photo depicts marked BH location for 22-6 located northeast of the on-site transformer adjacent to Appleby Line
	
Photograph 3 Photo depicts marked BH location 22-3 located south of the car wash building	**Photograph 4** Photo depicts marked BH location 22-1 located inside the car wash building

Appendix A – General
A1 – Sampling and Analysis Plan

Site: 1989 Appleby Line, Burlington Project #:1901204

Location ID	Media	Sample No.	Approximate Depth (m)	Date of Sample Collection	Date of Analysis	Chemical Analyses	Purpose and Justification
BH21-1	Soil	21-1-1	0 – 0.76	October 12, 2021	October 18-22, 2021	Metals	Characterize soil conditions across Phase Two Property
		21-1-1D	0 – 0.76			Metals duplicate	QA/QC. Duplicate sample of 21-1-1
		21-1-4	2.29 – 3.05			Petroleum Hydrocarbons (PHC) and pH	Worst case soil sample. Collected to verify and/or refute APEC 1, 2 and 3
	Ground Water	21-1	N/A	October 22, 2021	October 26-28, 2021	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
BH21-2	Soil	21-2-1	0 – 0.76	October 12, 2021	October 18-22, 2021	PHC/VOC	Characterize soil conditions across Phase Two Property
		21-2-1D	0 – 0.76			PHC/VOC duplicate	QA/QC. Duplicate sample of 21-2-1
		21-2-5	3.05 – 3.35			Grain size	Characterize soil conditions across Phase Two Property
	Ground Water	21-2	N/A	October 22, 2021	October 26-28, 2021	PHC/VOC	Characterize ground water conditions across Phase Two Property
		21-2D	N/A			PHC/VOC duplicate	QA/QC. Duplicate sample of 21-2
BH21-3	Soil	21-3-1	0 – 0.76	October 12, 2021	October 18-22, 2021	pH	Characterize soil conditions across Phase Two Property
		21-3-1	0 – 0.76			pH duplicate	QA/QC. Duplicate sample of 21-3-1
		21-3-2	0.76 – 1.52			Metals	Characterize soil conditions across Phase Two Property
		21-3-5	3.05 – 3.35			PHC/BTEX	Characterize soil conditions across Phase Two Property

		21-3-5	3.05 – 3.35			PHC/BTEX duplicate	QA/QC. Duplicate sample of 21-3-5
	Ground Water	21-3	N/A	October 22, 2021	October 26-28, 2021	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
		21-3	N/A			PHC/BTEX and Metals duplicate	QA/QC. Duplicate sample of 21-3
BH21-4	Soil	21-4-1	0 – 0.91	October 13, 2021	October 18-22, 2021	Metals	Characterize soil conditions across Phase Two Property
		21-4-5	3.05 – 3.66			PHC/BTEX	Characterize soil conditions across Phase Two Property
	Ground Water	21-4	N/A	October 22, 2021	October 26-28, 2021	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
BH21-5	Soil	21-5-3	1.52 – 2.29	October 13, 2021	October 18-22, 2021	Metals	Characterize soil conditions across Phase Two Property
		21-5-5	3.05 – 3.35			PHC/BTEX	Characterize soil conditions across Phase Two Property
	Ground Water	21-5	N/A	October 22, 2021	October 26-28, 2021	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
BH21-6	Soil	21-6-2	1.22 – 1.52	October 13, 2021	October 18-22, 2021	Metals	Characterize soil conditions across Phase Two Property
		21-6-3	1.52 – 2.29			PHC/BTEX	Characterize soil conditions across Phase Two Property
	Ground Water	21-6	N/A	October 22, 2021	October 26-28, 2021	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
BH21-7	Soil	21-7-2	0.91- 1.52	October 13, 2021	October 18-22, 2021	Metals	Characterize soil conditions across Phase Two Property
		21-7-5	3.05 – 3.66			PHC/BTEX	Characterize soil conditions across Phase Two Property
	Ground Water	21-7	N/A	October 22, 2021	October 26-28, 2021	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
BH22-1	Soil	22-1-1	0-0.762	April 11, 2022	April 18, 2022	PHC/VOC	Characterize soil conditions across Phase Two Property

	Ground Water	22-1	N/A	April 22, 2022		PHC/VOC	Characterize ground water conditions across Phase Two Property
BH22-2	Soil	22-2-2	0.762-1.52	April 11, 2022	April 18, 2022	PHC/VOC	Characterize soil conditions across Phase Two Property
		22-2-2D	0.762-1.52	April 11, 2022	April 18, 2022	PHC/VOC duplicate	QA/QC. Duplicate sample of 22-2-2
BH22-3	Soil	22-3-5	3.05-3.35	April 12, 2022	April 18, 2022	PHC/VOC	Characterize soil conditions across Phase Two Property
	Ground Water	22-3	N/A	April 21, 2022	April 29, 2022	PHC/VOC	Characterize ground water conditions across Phase Two Property
		22-3D	N/A	April 21, 2022	April 29, 2022	PHC/VOC duplicate	QA/QC. Duplicate sample of 22-3
BH22-4	Ground Water	22-4	N/A	April 20, 2022	April 26, 2022	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
BH22-5	Soil	22-5-4	2.29-3.05	April 11, 2022	April 12, 2022	PHC/BTEX, Metals	Characterize soil conditions across Phase Two Property
	Ground Water	22-5	N/A	April 20, 2022	April 26, 2022	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
		22-5D	N/A	April 20, 2022	April 26, 2022	PHC/BTEX duplicate, Metals duplicate	QA/QC. Duplicate sample of 22-5
BH22-6	Soil	22-6-5	3.05-3.66	April 11, 2022	April 18, 2022	PHC/BTEX	Characterize soil conditions across Phase Two Property
		22-6-5D	3.05-3.66	April 11, 2022	April 18, 2022	PHC/BTEX, duplicate	QA/QC. Duplicate sample of 22-6-5
		22-6-3	1.52-2.29	April 11, 2022	April 18, 2022	Metals	Characterize soil conditions across Phase Two Property
		22-6-3D	1.52-2.29	April 11, 2022	April 18, 2022	Metals duplicate	QA/QC. Duplicate sample of 22-6-3
	Ground Water	22-6	N/A	April 28, 2022	May 5, 2022	PHC/BTEX, Metals	Characterize ground water conditions across Phase Two Property
		22-6D	N/A	April 28, 2022	May 5, 2022	PHC/BTEX, Metals	QA/QC. Duplicate sample of 22-6

Appendix A – General
A2 – Finalized Field Logs

Palmer

LOG OF BOREHOLE BH21-1

PROJECT: Phase Two ESA
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: GeoProbe Dual Tube
ENCL NO.: 1
PROJECT LOCATION: 1989 Appleby Line, City of Burlington, ON
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Oct-12-2021
BH LOCATION: N 4805266.906 E 598068.864
CHECKED BY SO

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
139.4 Ground Surface						3 6 9 12 15			
139.2 0.2	**ASPHALT:** 100mm **FILL:** sand and gravel **FILL:** brown silty clay, trace gravel, trace sand		1	DT					Concrete
137.9 1.5	**SILTY CLAY TILL:** brown silty clay till, trace gravel, trace sand		2	DT	Analysis: ICPMS Metals				Bentonite
			3	DT	Analysis: PHCs/BTEX				
136.5 2.9	**SHALE:**brownish/red shale		4	DT					W. L. 136.5 m Oct 20, 2021
136.3 3.1	Refusal at 3.05 m. Augered to 4.7 m								Sand Screen
134.7 4.7	**END OF BOREHOLE** "Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2. Borehole was open upon completion of drilling. 3. Water Level Readings:Date: October 20, 2021 W. L. Depth: 2.86 mBGS"								

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

PALMER ENV_HWC 2017_0.0.0
PALMER ENVIRONMENTAL CONSULTANTS INC. - TEMPLATE LOGS.PRO\1901204\GPJ 21-10-1

Palmer

LOG OF BOREHOLE BH21-2

PROJECT: Phase Two ESA
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: GeoProbe Dual Tube
ENCL NO.: 2
PROJECT LOCATION: 1989 Appleby Line, City of Burlington, ON
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Oct-12-2021
BH LOCATION: N 4805262.684 E 598087.436
CHECKED BY SO

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
139.7	Ground Surface								
139.6 / 0.1	**ASPHALT:** 80mm								Concrete
139.5 / 0.2	**FILL:** sand and gravel								
	FILL: brown silty clay, trace gravel, trace sand, trace rootlets		1	DT	Analysis: PHCs/VOCs, Duplicate				
139.0 / 0.8	**FILL:** Brown clay, some silt, trace gravel		2	DT					
138.4 / 1.4	**FILL:** shale inclusions								
138.2 / 1.5	**SILTY CLAY TILL:** Brown silty clay till, trace gravel		3	DT					Bentonite
			4	DT					
136.5 / 3.2	**SHALE:** Redish/brown shale		5	DT	Analysis: Grainsize				
136.4 / 3.4	Refusal at 3.35 m. Augered to 6.25 m.								W. L. 135.5 m Oct 20, 2021
									Sand
									Screen
133.5 / 6.3	**END OF BOREHOLE**								

"Notes:
1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole.
2. Borehole was open upon completion of drilling.
3. Water Level Readings:Date: October 20, 2021W. L. Depth: 4.20 mBGS"

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

PALMER.ENV_LIVE.2017.GLB
PALMER.ENVSCI.ONJWOS1-18.RPM.2020 TEMPLATE LOGS.PH1913204GPJ 21-10-1

Palmer

LOG OF BOREHOLE BH21-3

PROJECT: Phase Two ESA
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: GeoProbe Dual Tube
ENCL NO.: 3
PROJECT LOCATION: 1989 Appleby Line, City of Burlington, ON
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Oct-13-2021
BH LOCATION: N 480258.134 E 598083.514
CHECKED BY SO

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
139.6 Ground Surface						3 6 9 12 15			
139.5 0.0	**ASPHALT:** 100mm								Concrete
0.1	**FILL:** brown silty clay, trace gravel, trace rootlets		1	DT	Analysis: pH, Duplicate				
138.8									
0.8	**FILL:** brown silty clay, trace gravel		2	DT	Analysis: Metals				
1									
			3	DT					Bentonite
2									
			4	DT					
136.7 2.9	**CLAY:** brown clay, trace silt, trace gravel								
3 136.5 3.1	**SILTY CLAY TILL :** brown silty clay till, trace gravel		5	DT	Analysis: PHC/BTEX, Duplicate				
136.4 3.2 136.2	**SHALE :** redish/brown shale								
3.4	Refusal at 3.35 m. Augered to 6.22 m.								
4									W. L. 135.5 m Oct 20, 2021
									Sand
									Screen
5									
6									
133.3 6.2	**END OF BOREHOLE** "Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2 Borehole was open upon completion of drilling. 3. Water Level Readings:Date: October 22, 2021W. L. Depth: 4.07 mBGS"								

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3 , × 3 : Numbers refer to Sensitivity ○ ε=3% Strain at Failure

PALMER.ENV_LIVE.2017.GLB
PALMER ENVIRONMENTAL LOGS.PH1901204.GPJ 21-10-1
TEMPLATE LOGS PHASE 2 ESA 2020

Palmer

LOG OF BOREHOLE BH21-4

PROJECT: Phase Two ESA
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: GeoProbe Dual Tube
ENCL NO.: 4
PROJECT LOCATION: 1989 Appleby Line, City of Burlington, ON
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Oct-13-2021
BH LOCATION: N 480526.802 E 598087.42
CHECKED BY SO

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
139.4 Ground Surface						3 6 9 12 15			
139.4 0.0	**ASPHALT:** 100mm								Concrete
139.3 0.1	**FILL:** sand and gravel								
139.1 0.3	**FILL:** brown clay, some cobble, trace gravel, trace rootlets		1	DT	Analysis: metals				
138.5									
1 0.9	**FILL:** brown silty clay, trace gravel		2	DT					
137.9									
1.5	**SILTY CLAY:** brown silty clay, trace gravel, trace sand, till gravel seam		3	DT					Bentonite
2 137.1									
2.3	**SILTY CLAY TILL:** brownish-red silty clay till, trace gravel		4	DT					
3 136.3									W. L. 136.5 m Oct 20, 2021
3.1	**SILTY CLAY TILL:** trace sand		5	DT	Analysis: PHC/BTEX				
135.7									
3.7	**SHALE :** redish/brown shale. Refusal at 3.35 m. Augered to 6.22 m.								Sand Screen
4 134.7									
4.7	**END OF BOREHOLE** "Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2. Borehole was open upon completion of drilling. 3. Water Level Readings:Date: October 20, 2021W. L. Depth: 2.88 mBGS"								

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3 , × 3 : Numbers refer to Sensitivity ○ ε=3% Strain at Failure

Palmer

LOG OF BOREHOLE BH21-5

PROJECT: Phase Two ESA
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: GeoProbe Dual Tube
ENCL NO.: 5
PROJECT LOCATION: 1989 Appleby Line, City of Burlington, ON
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Oct-13-2021
BH LOCATION: N 4805221.856 E 598084.352
CHECKED BY SO

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
139.4	Ground Surface								
139.2 / 0.2	**ASPHALT:** 100mm **FILL:** sand and gravel **FILL:** brown clay, some silt, trace gravel		1	DT					Concrete
138.6 / 0.8	**FILL:** trace rootlets		2	DT					
137.9 / 1.5	**CLAYEY SILT:** brown clayey silt, trace gravel		3	DT	Analysis: metals				Bentonite
			4	DT					
136.3 / 3.1	**CLAYEY SILT TILL:** brownish red clayey silt till, trace gravel, with shale inclusions		5	DT	Analysis: PHCs/BTEX				
136.0 / 3.4	**SHALE :** redish/brown shale. Refusal at 3.35 m. Augered to 5.26 m.								Sand Screen
134.1 / 5.3	**END OF BOREHOLE** "Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2. Borehole was open upon completion of drilling. 3. Water Level Readings:Date: October 20, 2021W. L. Depth: 5.03 mBGS"								W. L. 134.4 m Oct 20, 2021

Head Space Combustible Vapor Reading (ppm): 3, 6, 9, 12, 15

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

PALMER ENV_HWC 2017_GLB
PALMER ENVIRONMENTAL LOG STANDARD_TEMPLATE LOGS.PRO 01/12/2017 21:53:1

LOG OF BOREHOLE BH21-6

PROJECT: Phase Two ESA
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: GeoProbe Dual Tube
ENCL NO.: 6
PROJECT LOCATION: 1989 Appleby Line, City of Burlington, ON
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Oct-13-2021
BH LOCATION: N 4805257.29 E 598060.522
CHECKED BY SO

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
139.5 Ground Surface									
139.4 0.0	**ASPHALT:** 150mm								Concrete
139.2 0.2	**FILL:** brown sand and gravel, trace silt		1	DT					
	low recovery								
1 138.3 1.2	**FILL:** brown silty clay, trace gravel, trace rootlets		2	DT	Analysis: Metals				
138.0 1.5	**FILL:** brown clayey silt, trace gravel		3	DT	Analysis: PHC/BTEX				Bentonite
2 137.2	gravel seam								
2.3	**SILTY CLAY:** brownish-red silty clay, trace gravel		4	DT					
3			5	DT					
136.0 3.5	**CLAYEY SILT TILL:** brownish red clayey silt till, trace clay seams, trace gravel		6	DT					
135.5	gravel seam								
4 4.0	**SHALE :** redish/brown shale. Refusal at 3.96 m. Augered to 5.18 m.								Sand
									Screen
5 134.3 5.2	**END OF BOREHOLE** "Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2. Borehole was open upon completion of drilling. 3. Water Level Readings:Date: October 20, 2021W. L. Depth: DRY"								

Head Space Combustible Vapor Reading (ppm) scale: 3, 6, 9, 12, 15

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3 , × 3 : Numbers refer to Sensitivity ○ ε=3% Strain at Failure

Palmer

LOG OF BOREHOLE BH21-7

PROJECT: Phase Two ESA
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: GeoProbe Dual Tube
ENCL NO.: 7
PROJECT LOCATION: 1989 Appleby Line, City of Burlington, ON
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Oct-13-2021
BH LOCATION: N 4805280.678 E 597958.897
CHECKED BY SO

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
140.8 Ground Surface						3 6 9 12 15			
140.7 0.0	**ASPHALT:** 100mm								
0.1	**FILL:** brown sand and gravel, trace silt		1	DT					
139.9									
1 0.9	**FILL:** brown silty clay, trace gravel		2	DT	Analysis: Metals				
139.3									
1.5	**SILTY CLAY:** brown silty clay, trace gravel		3	DT					
2 138.3									
2.4	**CLAY:** brown clay, some silt, trace gravel		4	DT					
3 137.7									
3.1	**SILTY CLAY:** brown silty clay, some sand, trace gravel, moist		5	DT	Analysis: PHC/BTEX				
137.1									
3.7	**SILTY CLAY TILL:** brownish-red silty clay till, some sand, trace gravel		6	DT					
136.8									
4.0	**END OF BOREHOLE** Refusal at 3.96 m on shale bedrock								

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

PALMER ENV_HWC 2017_02.0
PALMER ENVIRONMENTAL LOG W ACS - 18 FEB/2020 TEMPLATE LOGS 1901204 GPJ 21-10-1

LOG OF BOREHOLE BH22-1

PROJECT: Phase Two ESA_1989 Appleby Line
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: Geoprobe Dual Tube
ENCL NO.: 1
PROJECT LOCATION: 1989 Appleby Line, City of Burlington
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Apr-11-2022
BH LOCATION: N 598080.71 E 4805266.32
CHECKED BY KN

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
149.2	Ground Surface								
149.0	**CONCRETE:**								Concrete
0.1	**SILTY SAND AND GRAVEL:** fill		1	DT	Analysis: PHC/VOC				
148.6									
0.6	**CLAYEY SILT FILL:** trace gravel, trace sand		2	DT					Bentonite
1									
147.6									
1.5	**CLAYEY SILT TILL:** trace gravel		3	DT					
2									
			4	DT					
146.1									
3.1	**CLAYEY SILT TILL/SHALE COMPLEX:**		5	DT					
145.4									
145.8	**WEATHERED SHALE:**								
4 3.8	**END OF BOREHOLE**		6	DT					Sand
	"Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2. Borehole was open upon completion of drilling. 3. Water Level Readings: Date: April 28, 2022 W. L. Depth: 5.49 mBGS"								Screen
5									W. L. 143.7 m Apr 28, 2022
6									

Head Space Combustible Vapor Reading (ppm) scale: 50, 100, 150, 200, 250

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ 6=3% Strain at Failure

Palmer

LOG OF BOREHOLE BH22-2

PROJECT: Phase Two ESA_1989 Appleby Line
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: Geoprobe Dual Tube
ENCL NO.: 2
PROJECT LOCATION: 1989 Appleby Line, City of Burlington
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Apr-11-2022
BH LOCATION: N 598090.45 E 4805270.57
CHECKED BY KN

SOIL PROFILE			SAMPLES		SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE		5 10 15 20 25			
148.3	Ground Surface								
148.2	**ASPHALT:**								
0.1 148.0	**SILTY SAND AND GRAVEL FILL:**								
0.3	**CLAYEY SILT FILL:** trace gravel, trace sand		1	DT					
1			2	DT	Analysis: PHC/VOC, duplicate				
146.8									
1.5	**CLAYEY SILT TILL:** trace gravel		3	DT					
2									
			4	DT					
3 145.3									
3.1	**END OF BOREHOLE**								

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

PALMER.BEAV / AMV / 2022-10-3
V:\OVLDER FILES\CSLW\ LOGS\ PHASE\ 1\ 1901204.GPJ TEMPLATE LOGS PHASE\ 1\ 2021.GDT 22-8-25

Palmer

LOG OF BOREHOLE BH22-3

PROJECT: Phase Two ESA_1989 Appleby Line
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: Geoprobe Dual Tube
ENCL NO.: 3
PROJECT LOCATION: 1989 Appleby Line, City of Burlington
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Apr-11-2022
BH LOCATION: N 598095.62 E 4805266.09
CHECKED BY KN

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
141.2	Ground Surface					50 100 150 200 250			
0.0 / 141.0	**CONCRETE:**								Concrete
140.9 / 0.3	**SAND AND GRAVEL:** sand and gravel fill **SILTY CLAY:**trace sand, trace gravel, fill		1	DT					
1			2	DT					Bentonite
139.7 / 1.5	**CLAYEY SILT:**trace sand, trace gravel, native		3	DT					
2			4	DT					
3			5	DT	Analysis: PHC/VOC				
137.8 / 3.4	**WEATHERED SHALE:**		6	DT					
137.4 / 3.8	**END OF BOREHOLE:** "Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2. Borehole was open upon completion of drilling. 3. Water Level Readings: Date: April 28, 2022 W. L. Depth: 4.62 mBGS"								Sand Screen W. L. 136.6 m Apr 28, 2022
4									
5									
6									

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ 8 =3% Strain at Failure

Palmer

LOG OF BOREHOLE BH22-5

PROJECT: Phase Two ESA_1989 Appleby Line
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: Geoprobe Dual Tube
ENCL NO.: 5
PROJECT LOCATION: 1989 Appleby Line, City of Burlington
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Apr-11-2022
BH LOCATION: N 598067.61 E 4805203.37
CHECKED BY KN

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
138.3 / 0.0	Ground Surface								
138.2 / 0.0	**ASPHALT:**								Concrete
0.2	**SAND AND GRAVEL:** sand and gravel fill		1	DT					
137.7 / 0.6	**SILTY CLAY:**trace sand, trace gravel, fill		2	DT					
136.9 / 1.4	**CLAYEY SILT:**trace sand, trace gravel, native		3	DT					Bentonite
			4	DT	Analysis: PHC/BTEX, metals				
			5	DT					
			6	DT					
134.4 / 4.0	**WEATHERED SHALE:**								
134.3 / 4.0	**END OF BOREHOLE**								W. L. 133.8 m Apr 28, 2022
	"Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2. Borehole was open upon completion of drilling. 3. Water Level Readings: Date: April 28, 2022 W. L. Depth: 4.48 mBGS"								Sand Screen

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

Palmer

LOG OF BOREHOLE BH22-6

PROJECT: Phase Two ESA_1989 Appleby Line
REF. NO.: 1901204
CLIENT: 1989 Latch Limited Partnership
Method: Geoprobe Dual Tube
ENCL NO.: 6
PROJECT LOCATION: 1989 Appleby Line, City of Burlington
Diameter: 150 mm
ORIGINATED BY SB
DATUM: Geodetic
Date: Apr-11-2022
BH LOCATION: N 598048.34 E 4805213.98
CHECKED BY KN

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLE REMARKS	Head Space Combustible Vapor Reading (ppm)	LABORATORY ANALYSIS AND REMARKS	GROUND WATER CONDITIONS	WELL CONSTRUCTION DETAILS
138.2 Ground Surface						500 1000 1500 2000 2500			
138.1 0.0	**ASPHALT:**								Concrete
0.2 137.5	**SILTY SAND AND GRAVEL:** fill		1	DT					
0.8 136.7	**CLAYEY SILT:**trace sand, trace gravel, fill		2	DT					
1.5 135.2	**CLAYEY SILT:**trace sand, trace gravel, native		3	DT					Bentonite
			4	DT					
3.1 134.6	**SILTY CLAY/WEATHERED SHALE:**some gravel, native		5	DT	Analysis: PHC/BTEX, duplicate				
3.7 134.1	**WEATHERED SHALE:**		6	DT					W. L. 134.4 m Apr 28, 2022
4.1	**END OF BOREHOLE:** "Notes: 1. Upon completion of drilling, one 50mm diameter monitoring well was installed in the borehole. 2. Borehole was open upon completion of drilling. 3. Water Level Readings: Date: April 28, 2022 W. L. Depth: 3.86 mBGS"								Sand Screen

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ 3=3% Strain at Failure

Appendix A – General

A3 – Certificates of Analysis or Analytical Reports from Laboratories

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

351 Nash Road North, unit 9B
Hamilton, ON L8H 7P4
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Palmer Environmental Consulting Group Inc.
74 Berkeley Street
Toronto, ON M5A 2W7
Attn: Sylvia Babiarz

Client PO: 1901204
Project: 1901204
Custody: 135232

Report Date: 12-Apr-2022
Order Date: 7-Apr-2022

Order #: 2215508

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

Paracel ID	Client ID
2215508-01	22-5-4

Approved By:



Alex Enfield, MSc
Lab Manager

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	11-Apr-22	12-Apr-22
PHC F1	CWS Tier 1 - P&T GC-FID	11-Apr-22	12-Apr-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	11-Apr-22	12-Apr-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	11-Apr-22	12-Apr-22
Solids, %	Gravimetric, calculation	8-Apr-22	9-Apr-22

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 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine

	Client ID:	22-5-4	-	-	-	**Criteria:**	
	Sample Date:	05-Apr-22 12:00	-	-	-	**Reg 153/04 -T3**	**Reg 153/04 -T3**
	Sample ID:	2215508-01	-	-	-	**Res/Park, coarse**	**Res/Park, fine**
	Matrix:	Soil	-	-	-		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	88.1	-	-	-	-	-
Metals							
Antimony	1.0 ug/g	<1.0	-	-	-	7.5 ug/g	7.5 ug/g
Arsenic	1.0 ug/g	4.2	-	-	-	18 ug/g	18 ug/g
Barium	1.0 ug/g	46.9	-	-	-	390 ug/g	390 ug/g
Beryllium	0.5 ug/g	<0.5	-	-	-	4 ug/g	5 ug/g
Boron	5.0 ug/g	<5.0	-	-	-	120 ug/g	120 ug/g
Cadmium	0.5 ug/g	<0.5	-	-	-	1.2 ug/g	1.2 ug/g
Chromium	5.0 ug/g	14.4	-	-	-	160 ug/g	160 ug/g
Cobalt	1.0 ug/g	5.2	-	-	-	22 ug/g	22 ug/g
Copper	5.0 ug/g	22.4	-	-	-	140 ug/g	180 ug/g
Lead	1.0 ug/g	31.6	-	-	-	120 ug/g	120 ug/g
Molybdenum	1.0 ug/g	<1.0	-	-	-	6.9 ug/g	6.9 ug/g
Nickel	5.0 ug/g	12.6	-	-	-	100 ug/g	130 ug/g
Selenium	1.0 ug/g	<1.0	-	-	-	2.4 ug/g	2.4 ug/g
Silver	0.3 ug/g	<0.3	-	-	-	20 ug/g	25 ug/g
Thallium	1.0 ug/g	<1.0	-	-	-	1 ug/g	1 ug/g
Uranium	1.0 ug/g	<1.0	-	-	-	23 ug/g	23 ug/g
Vanadium	10.0 ug/g	26.1	-	-	-	86 ug/g	86 ug/g
Zinc	20.0 ug/g	109	-	-	-	340 ug/g	340 ug/g
Volatiles							
Benzene	0.02 ug/g	<0.02	-	-	-	0.21 ug/g	0.17 ug/g
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	2 ug/g	15 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	-	-	-	-	-

Certificate of Analysis

Report Date: 12-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 7-Apr-2022

Client PO: **1901204**

Project Description: 1901204

						Criteria:	
	Client ID:	22-5-4	-	-	-		
	Sample Date:	05-Apr-22 12:00	-	-	-	**Reg 153/04 -T3 Res/Park, coarse**	**Reg 153/04 -T3 Res/Park, fine**
	Sample ID:	2215508-01	-	-	-		
	Matrix:	Soil	-	-	-		
	MDL/Units						
Volatiles							
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	96.1%	-	-	-	-	-
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

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					
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	*7.52*		*ug/g*	*94.0*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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)	26	8	ug/g	11			NC	30	
F4 PHCs (C34-C50)	45	6	ug/g	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	4.9	1.0	ug/g	4.4			10.4	30	
Barium	27.7	1.0	ug/g	26.2			5.8	30	
Beryllium	0.5	0.5	ug/g	ND			NC	30	
Boron	ND	5.0	ug/g	ND			NC	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	13.2	5.0	ug/g	11.2			16.0	30	
Cobalt	6.8	1.0	ug/g	6.4			6.1	30	
Copper	41.2	5.0	ug/g	39.1			5.1	30	
Lead	8.3	1.0	ug/g	7.9			4.8	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	14.7	5.0	ug/g	13.3			10.1	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	22.9	10.0	ug/g	21.0			8.9	30	
Zinc	56.9	20.0	ug/g	60.2			5.5	30	
Physical Characteristics									
% Solids	84.7	0.1	% by Wt.	85.3			0.6	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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	*6.08*		*ug/g*		*95.1*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	77	7	ug/g	ND	109	80-120			
F2 PHCs (C10-C16)	79	4	ug/g	ND	95.5	60-140			
F3 PHCs (C16-C34)	175	8	ug/g	11	88.5	60-140			
F4 PHCs (C34-C50)	170	6	ug/g	ND	127	60-140			
Metals									
Antimony	144	1.0	ug/g	ND	115	70-130			
Arsenic	138	1.0	ug/g	4.4	107	70-130			
Barium	162	1.0	ug/g	26.2	109	70-130			
Beryllium	125	0.5	ug/g	ND	99.8	70-130			
Boron	132	5.0	ug/g	ND	106	70-130			
Cadmium	127	0.5	ug/g	ND	102	70-130			
Chromium	141	5.0	ug/g	11.2	103	70-130			
Cobalt	133	1.0	ug/g	6.4	101	70-130			
Copper	170	5.0	ug/g	39.1	105	70-130			
Lead	131	1.0	ug/g	7.9	98.2	70-130			
Molybdenum	129	1.0	ug/g	ND	103	70-130			
Nickel	143	5.0	ug/g	13.3	103	70-130			
Selenium	134	1.0	ug/g	ND	107	70-130			
Silver	122	0.3	ug/g	ND	97.9	70-130			
Thallium	121	1.0	ug/g	ND	96.5	70-130			
Uranium	125	1.0	ug/g	ND	100	70-130			
Vanadium	152	10.0	ug/g	21.0	105	70-130			
Zinc	191	20.0	ug/g	60.2	104	70-130			
Volatiles									
Benzene	4.63	0.02	ug/g	ND	115	60-130			
Ethylbenzene	4.72	0.05	ug/g	ND	117	60-130			
Toluene	4.30	0.05	ug/g	ND	107	60-130			
m,p-Xylenes	9.54	0.05	ug/g	ND	119	60-130			
o-Xylene	4.79	0.05	ug/g	ND	119	60-130			
Surrogate: Toluene-d8	*7.62*		*ug/g*		*95.3*	*50-140*			

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

Soil results are reported on a dry weight basis unlesss 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 liabilty 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.

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Paracel ID: 2215508

Chain Of Custody
(Lab Use Only)
№ 135232

Client Name: Palmer Environmental Consulting Group	Project Ref: 1901204	Page 1 of 1
Contact Name: S. Fabiarz	Quote #: 21-438 Palmer 21293	**Turnaround Time**
Address: 74 Berkeley St, Toronto	PO #: 1901204	☐ 1 day ☐ 3 day
Telephone: 647 882 7310	E-mail: sylvia.fabiarz@pecg.ca khalina.naydenova@pecg.ca sarah.sipak@pecg.ca	☐ 2 day ☒ Regular
		Date Required: April 12/22

☒ 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)
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA	
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm	
☐ Table ___	Mun: ___	
For RSC: ☐ Yes ☐ No	☐ Other:	

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	22-5-4	Soil		3	April 5/22	12:00 pm	✓			✓								
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): Sylvia Fabiarz	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Sylvia Fabiarz	Date/Time: April 7/22 8:00	Date/Time: April 8/22 10:00	Date/Time:
Date/Time: April 6@ 8pm	Temperature: 6.3 °C	Temperature: 12.0 °C	pH Verified: ☐ By:

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Paracel ID: 2215508

Chain Of Custody
(Lab Use Only)
№ 135232

Client Name: Palmer Environmental Consulting Group
Contact Name: S. Fabiarz
Address: 74 Berkeley St, Toronto
Telephone: 647 882 7310

Project Ref: 1901204
Quote #: 21-438 Palmer 21293
PO #: 1901204
E-mail: Sylvia.Fabiarz@pecg.ca
Khalina.Nayderova@pecg.ca
Sarah.Sipak@pecg.ca

Page 1 of 1

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required: April 12/22

☒ REG 153/04 ☐ REG 406/19

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm ☐ Mun: ☐ Other:

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☒ Table 3 ☐ Agri/Other
☐ Table
For RSC: ☐ Yes ☐ No

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)						
1	22-5-4	Soil		3	April 5/22	12:00 pm	✓			✓									
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): Sylvia Fabiarz
Relinquished By (Print): Sylvia Fabiarz
Date/Time: April 6@ 8pm

Received By Driver/Depot:
Date/Time: Apr 7/22 8:00
Temperature: 6.3 °C

Received at Lab:
Date/Time: April 8/22 10:00
Temperature: 12.0 °C

Verified By:
Date/Time: April 8/22 10:03
pH Verified: ☐ By:

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Certificate of Analysis

Palmer Environmental Consulting Group Inc.
74 Berkeley Street
Toronto, ON M5A 2W7
Attn: Sylvia Babiarz

Client PO: 1901204
Project: 1901204
Custody: 65489

Report Date: 19-Apr-2022
Order Date: 13-Apr-2022

Revised Report

Order #: 2216368

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

Paracel ID	Client ID
2216368-01	22-1-1
2216368-02	22-2-2
2216368-03	22-2-2D
2216368-04	22-6-3
2216368-05	22-6-3D
2216368-06	22-6-5
2216368-07	22-6-5D
2216368-08	22-3-5

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	18-Apr-22	18-Apr-22
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	14-Apr-22	18-Apr-22
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	14-Apr-22	18-Apr-22
Mercury by CVAA	EPA 7471B - CVAA, digestion	18-Apr-22	18-Apr-22
PCBs, total	SW846 8082A - GC-ECD	14-Apr-22	18-Apr-22
PHC F1	CWS Tier 1 - P&T GC-FID	14-Apr-22	18-Apr-22
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	18-Apr-22	18-Apr-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	14-Apr-22	16-Apr-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	18-Apr-22	18-Apr-22
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	14-Apr-22	18-Apr-22
Solids, %	Gravimetric, calculation	14-Apr-22	16-Apr-22

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 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine

Certificate of Analysis

Report Date: 19-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 13-Apr-2022

Client PO: 1901204

Project Description: 1901204

	Client ID:	22-1-1	22-2-2	22-2-2D	22-6-3	Criteria:	
	Sample Date:	11-Apr-22 10:30	11-Apr-22 11:00	11-Apr-22 11:30	11-Apr-22 12:00	Reg 153/04 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine
	Sample ID:	2216368-01	2216368-02	2216368-03	2216368-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	83.5	84.2	84.2	88.0	-	-
Metals							
Antimony	1.0 ug/g	-	-	-	<1.0	7.5 ug/g	7.5 ug/g
Arsenic	1.0 ug/g	-	-	-	4.7	18 ug/g	18 ug/g
Barium	1.0 ug/g	-	-	-	102	390 ug/g	390 ug/g
Beryllium	0.5 ug/g	-	-	-	0.6	4 ug/g	5 ug/g
Boron	5.0 ug/g	-	-	-	9.2	120 ug/g	120 ug/g
Boron, available	0.5 ug/g	-	-	-	<0.5	1.5 ug/g	1.5 ug/g
Cadmium	0.5 ug/g	-	-	-	<0.5	1.2 ug/g	1.2 ug/g
Chromium	5.0 ug/g	-	-	-	20.0	160 ug/g	160 ug/g
Chromium (VI)	0.2 ug/g	-	-	-	<0.2	8 ug/g	10 ug/g
Cobalt	1.0 ug/g	-	-	-	10.9	22 ug/g	22 ug/g
Copper	5.0 ug/g	-	-	-	21.8	140 ug/g	180 ug/g
Lead	1.0 ug/g	-	-	-	10.0	120 ug/g	120 ug/g
Mercury	0.1 ug/g	-	-	-	<0.1	0.27 ug/g	1.8 ug/g
Molybdenum	1.0 ug/g	-	-	-	<1.0	6.9 ug/g	6.9 ug/g
Nickel	5.0 ug/g	-	-	-	22.6	100 ug/g	130 ug/g
Selenium	1.0 ug/g	-	-	-	<1.0	2.4 ug/g	2.4 ug/g
Silver	0.3 ug/g	-	-	-	<0.3	20 ug/g	25 ug/g
Thallium	1.0 ug/g	-	-	-	<1.0	1 ug/g	1 ug/g
Uranium	1.0 ug/g	-	-	-	<1.0	23 ug/g	23 ug/g
Vanadium	10.0 ug/g	-	-	-	27.6	86 ug/g	86 ug/g
Zinc	20.0 ug/g	-	-	-	53.2	340 ug/g	340 ug/g
Volatiles							
Acetone	0.50 ug/g	<0.50	<0.50	<0.50	-	16 ug/g	28 ug/g

Certificate of Analysis

Report Date: 19-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 13-Apr-2022

Client PO: 1901204

Project Description: 1901204

	Client ID:	22-1-1	22-2-2	22-2-2D	22-6-3	Criteria:	
	Sample Date:	11-Apr-22 10:30	11-Apr-22 11:00	11-Apr-22 11:30	11-Apr-22 12:00	Reg 153/04 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine
	Sample ID:	2216368-01	2216368-02	2216368-03	2216368-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.21 ug/g	0.17 ug/g
Bromodichloromethane	0.05 ug/g	<0.05	<0.05	<0.05	-	13 ug/g	13 ug/g
Bromoform	0.05 ug/g	<0.05	<0.05	<0.05	-	0.27 ug/g	0.26 ug/g
Bromomethane	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.05 ug/g
Carbon Tetrachloride	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.12 ug/g
Chlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	2.4 ug/g	2.7 ug/g
Chloroform	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.18 ug/g
Dibromochloromethane	0.05 ug/g	<0.05	<0.05	<0.05	-	9.4 ug/g	9.4 ug/g
Dichlorodifluoromethane	0.05 ug/g	<0.05	<0.05	<0.05	-	16 ug/g	25 ug/g
1,2-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	3.4 ug/g	4.3 ug/g
1,3-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	4.8 ug/g	6 ug/g
1,4-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	0.083 ug/g	0.097 ug/g
1,1-Dichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	3.5 ug/g	11 ug/g
1,2-Dichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.05 ug/g
1,1-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.05 ug/g
cis-1,2-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	3.4 ug/g	30 ug/g
trans-1,2-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	0.084 ug/g	0.75 ug/g
1,2-Dichloropropane	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.085 ug/g
cis-1,3-Dichloropropylene	0.05 ug/g	<0.05	<0.05	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g	<0.05	<0.05	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.083 ug/g
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	2 ug/g	15 ug/g
Ethylene dibromide (dibromoethane,	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.05 ug/g
Hexane	0.05 ug/g	<0.05	<0.05	<0.05	-	2.8 ug/g	34 ug/g
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g	<0.50	<0.50	<0.50	-	16 ug/g	44 ug/g

	Client ID:	22-1-1	22-2-2	22-2-2D	22-6-3	Criteria:	
	Sample Date:	11-Apr-22 10:30	11-Apr-22 11:00	11-Apr-22 11:30	11-Apr-22 12:00	Reg 153/04 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine
	Sample ID:	2216368-01	2216368-02	2216368-03	2216368-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Methyl Isobutyl Ketone	0.50 ug/g	<0.50	<0.50	<0.50	-	1.7 ug/g	4.3 ug/g
Methyl tert-butyl ether	0.05 ug/g	<0.05	<0.05	<0.05	-	0.75 ug/g	1.4 ug/g
Methylene Chloride	0.05 ug/g	<0.05	<0.05	<0.05	-	0.1 ug/g	0.96 ug/g
Styrene	0.05 ug/g	<0.05	<0.05	<0.05	-	0.7 ug/g	2.2 ug/g
1,1,1,2-Tetrachloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	0.058 ug/g	0.05 ug/g
1,1,2,2-Tetrachloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.05 ug/g
Tetrachloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	0.28 ug/g	2.3 ug/g
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	-	2.3 ug/g	6 ug/g
1,1,1-Trichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	0.38 ug/g	3.4 ug/g
1,1,2-Trichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	0.05 ug/g	0.05 ug/g
Trichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	0.061 ug/g	0.52 ug/g
Trichlorofluoromethane	0.05 ug/g	<0.05	<0.05	<0.05	-	4 ug/g	5.8 ug/g
Vinyl chloride	0.02 ug/g	<0.02	<0.02	<0.02	-	0.02 ug/g	0.022 ug/g
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	-	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	-	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	-	3.1 ug/g	25 ug/g
Dibromofluoromethane	Surrogate	111%	109%	108%	-	-	-
Toluene-d8	Surrogate	125%	124%	127%	-	-	-
4-Bromofluorobenzene	Surrogate	107%	102%	105%	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	-	55 ug/g	65 ug/g
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	-	98 ug/g	150 ug/g
F3 PHCs (C16-C34)	8 ug/g	<8	<8	<8	-	300 ug/g	1300 ug/g
F4 PHCs (C34-C50)	6 ug/g	<6	<6	<6	-	2800 ug/g	5600 ug/g
PCBs							

Certificate of Analysis

Report Date: 19-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 13-Apr-2022

Client PO: 1901204

Project Description: 1901204

	Client ID:	22-1-1	22-2-2	22-2-2D	22-6-3	Criteria:	
	Sample Date:	11-Apr-22 10:30	11-Apr-22 11:00	11-Apr-22 11:30	11-Apr-22 12:00	Reg 153/04 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine
	Sample ID:	2216368-01	2216368-02	2216368-03	2216368-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
PCBs							
PCBs, total	0.05 ug/g	-	-	-	<0.05	0.35 ug/g	0.35 ug/g
Decachlorobiphenyl	Surrogate	-	-	-	99.5%	-	-

Certificate of Analysis

Report Date: 19-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 13-Apr-2022

Client PO: 1901204

Project Description: 1901204

	Client ID:	22-6-3D	22-6-5	22-6-5D	22-3-5	Criteria:	
	Sample Date:	11-Apr-22 12:30	11-Apr-22 13:00	11-Apr-22 14:00	12-Apr-22 11:30	Reg 153/04 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine
	Sample ID:	2216368-05	2216368-06	2216368-07	2216368-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	87.6	87.2	86.0	89.1	-	-
Metals							
Antimony	1.0 ug/g	<1.0	-	-	-	7.5 ug/g	7.5 ug/g
Arsenic	1.0 ug/g	4.5	-	-	-	18 ug/g	18 ug/g
Barium	1.0 ug/g	116	-	-	-	390 ug/g	390 ug/g
Beryllium	0.5 ug/g	0.7	-	-	-	4 ug/g	5 ug/g
Boron	5.0 ug/g	10.6	-	-	-	120 ug/g	120 ug/g
Boron, available	0.5 ug/g	<0.5	-	-	-	1.5 ug/g	1.5 ug/g
Cadmium	0.5 ug/g	<0.5	-	-	-	1.2 ug/g	1.2 ug/g
Chromium	5.0 ug/g	21.1	-	-	-	160 ug/g	160 ug/g
Chromium (VI)	0.2 ug/g	<0.2	-	-	-	8 ug/g	10 ug/g
Cobalt	1.0 ug/g	11.7	-	-	-	22 ug/g	22 ug/g
Copper	5.0 ug/g	24.0	-	-	-	140 ug/g	180 ug/g
Lead	1.0 ug/g	10.2	-	-	-	120 ug/g	120 ug/g
Mercury	0.1 ug/g	<0.1	-	-	-	0.27 ug/g	1.8 ug/g
Molybdenum	1.0 ug/g	<1.0	-	-	-	6.9 ug/g	6.9 ug/g
Nickel	5.0 ug/g	24.0	-	-	-	100 ug/g	130 ug/g
Selenium	1.0 ug/g	<1.0	-	-	-	2.4 ug/g	2.4 ug/g
Silver	0.3 ug/g	<0.3	-	-	-	20 ug/g	25 ug/g
Thallium	1.0 ug/g	<1.0	-	-	-	1 ug/g	1 ug/g
Uranium	1.0 ug/g	<1.0	-	-	-	23 ug/g	23 ug/g
Vanadium	10.0 ug/g	29.1	-	-	-	86 ug/g	86 ug/g
Zinc	20.0 ug/g	54.9	-	-	-	340 ug/g	340 ug/g
Volatiles							
Acetone	0.50 ug/g	-	-	-	<0.50	16 ug/g	28 ug/g

	Client ID:	22-6-3D	22-6-5	22-6-5D	22-3-5	Criteria:	
	Sample Date:	11-Apr-22 12:30	11-Apr-22 13:00	11-Apr-22 14:00	12-Apr-22 11:30	Reg 153/04 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine
	Sample ID:	2216368-05	2216368-06	2216368-07	2216368-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	-	-	-	<0.02	0.21 ug/g	0.17 ug/g
Bromodichloromethane	0.05 ug/g	-	-	-	<0.05	13 ug/g	13 ug/g
Bromoform	0.05 ug/g	-	-	-	<0.05	0.27 ug/g	0.26 ug/g
Bromomethane	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.05 ug/g
Carbon Tetrachloride	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.12 ug/g
Chlorobenzene	0.05 ug/g	-	-	-	<0.05	2.4 ug/g	2.7 ug/g
Chloroform	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.18 ug/g
Dibromochloromethane	0.05 ug/g	-	-	-	<0.05	9.4 ug/g	9.4 ug/g
Dichlorodifluoromethane	0.05 ug/g	-	-	-	<0.05	16 ug/g	25 ug/g
1,2-Dichlorobenzene	0.05 ug/g	-	-	-	<0.05	3.4 ug/g	4.3 ug/g
1,3-Dichlorobenzene	0.05 ug/g	-	-	-	<0.05	4.8 ug/g	6 ug/g
1,4-Dichlorobenzene	0.05 ug/g	-	-	-	<0.05	0.083 ug/g	0.097 ug/g
1,1-Dichloroethane	0.05 ug/g	-	-	-	<0.05	3.5 ug/g	11 ug/g
1,2-Dichloroethane	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.05 ug/g
1,1-Dichloroethylene	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.05 ug/g
cis-1,2-Dichloroethylene	0.05 ug/g	-	-	-	<0.05	3.4 ug/g	30 ug/g
trans-1,2-Dichloroethylene	0.05 ug/g	-	-	-	<0.05	0.084 ug/g	0.75 ug/g
1,2-Dichloropropane	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.085 ug/g
cis-1,3-Dichloropropylene	0.05 ug/g	-	-	-	<0.05	-	-
trans-1,3-Dichloropropylene	0.05 ug/g	-	-	-	<0.05	-	-
1,3-Dichloropropene, total	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.083 ug/g
Ethylene dibromide (dibromoethane,	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.05 ug/g
Ethylbenzene	0.05 ug/g	-	-	-	<0.05	2 ug/g	15 ug/g
Hexane	0.05 ug/g	-	-	-	<0.05	2.8 ug/g	34 ug/g
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g	-	-	-	<0.50	16 ug/g	44 ug/g

	Client ID:	22-6-3D	22-6-5	22-6-5D	22-3-5	Criteria:	
	Sample Date:	11-Apr-22 12:30	11-Apr-22 13:00	11-Apr-22 14:00	12-Apr-22 11:30	Reg 153/04 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine
	Sample ID:	2216368-05	2216368-06	2216368-07	2216368-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Methyl Isobutyl Ketone	0.50 ug/g	-	-	-	<0.50	1.7 ug/g	4.3 ug/g
Methyl tert-butyl ether	0.05 ug/g	-	-	-	<0.05	0.75 ug/g	1.4 ug/g
Methylene Chloride	0.05 ug/g	-	-	-	<0.05	0.1 ug/g	0.96 ug/g
Styrene	0.05 ug/g	-	-	-	<0.05	0.7 ug/g	2.2 ug/g
1,1,1,2-Tetrachloroethane	0.05 ug/g	-	-	-	<0.05	0.058 ug/g	0.05 ug/g
1,1,2,2-Tetrachloroethane	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.05 ug/g
Tetrachloroethylene	0.05 ug/g	-	-	-	<0.05	0.28 ug/g	2.3 ug/g
Toluene	0.05 ug/g	-	-	-	<0.05	2.3 ug/g	6 ug/g
1,1,1-Trichloroethane	0.05 ug/g	-	-	-	<0.05	0.38 ug/g	3.4 ug/g
1,1,2-Trichloroethane	0.05 ug/g	-	-	-	<0.05	0.05 ug/g	0.05 ug/g
Trichloroethylene	0.05 ug/g	-	-	-	<0.05	0.061 ug/g	0.52 ug/g
Trichlorofluoromethane	0.05 ug/g	-	-	-	<0.05	4 ug/g	5.8 ug/g
Vinyl chloride	0.02 ug/g	-	-	-	<0.02	0.02 ug/g	0.022 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
4-Bromofluorobenzene	Surrogate	-	-	-	102%	-	-
Toluene-d8	Surrogate	-	-	-	123%	-	-
Dibromofluoromethane	Surrogate	-	-	-	106%	-	-
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	-	2 ug/g	15 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	-	-	-
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

	Client ID:	22-6-3D	22-6-5	22-6-5D	22-3-5	Criteria:	
	Sample Date:	11-Apr-22 12:30	11-Apr-22 13:00	11-Apr-22 14:00	12-Apr-22 11:30	Reg 153/04 -T3 Res/Park, coarse	Reg 153/04 -T3 Res/Park, fine
	Sample ID:	2216368-05	2216368-06	2216368-07	2216368-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Toluene-d8	Surrogate	-	122%	129%	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	-	<7	<7	<7	55 ug/g	65 ug/g
F2 PHCs (C10-C16)	4 ug/g	-	16	12	<4	98 ug/g	150 ug/g
F3 PHCs (C16-C34)	8 ug/g	-	180	80	<8	300 ug/g	1300 ug/g
F4 PHCs (C34-C50)	6 ug/g	-	431 [2]	211 [2]	<6	2800 ug/g	5600 ug/g
F4G PHCs (gravimetric)	50 ug/g	-	711	465	-	2800 ug/g	5600 ug/g
PCBs							
PCBs, total	0.05 ug/g	<0.05	-	-	-	0.35 ug/g	0.35 ug/g
Decachlorobiphenyl	Surrogate	97.5%	-	-	-	-	-

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					
F4G PHCs (gravimetric)	ND	50	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, available	ND	0.5	ug/g					
Boron	ND	5.0	ug/g					
Cadmium	ND	0.5	ug/g					
Chromium (VI)	ND	0.2	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					
Mercury	ND	0.1	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					
PCBs								
PCBs, total	ND	0.05	ug/g					
Surrogate: Decachlorobiphenyl	*0.0904*		*ug/g*	*90.4*	*60-140*			
Volatiles								
Acetone	ND	0.50	ug/g					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzene	ND	0.02	ug/g					
Bromodichloromethane	ND	0.05	ug/g					
Bromoform	ND	0.05	ug/g					
Bromomethane	ND	0.05	ug/g					
Carbon Tetrachloride	ND	0.05	ug/g					
Chlorobenzene	ND	0.05	ug/g					
Chloroform	ND	0.05	ug/g					
Dibromochloromethane	ND	0.05	ug/g					
Dichlorodifluoromethane	ND	0.05	ug/g					
1,2-Dichlorobenzene	ND	0.05	ug/g					
1,3-Dichlorobenzene	ND	0.05	ug/g					
1,4-Dichlorobenzene	ND	0.05	ug/g					
1,1-Dichloroethane	ND	0.05	ug/g					
1,2-Dichloroethane	ND	0.05	ug/g					
1,1-Dichloroethylene	ND	0.05	ug/g					
cis-1,2-Dichloroethylene	ND	0.05	ug/g					
trans-1,2-Dichloroethylene	ND	0.05	ug/g					
1,2-Dichloropropane	ND	0.05	ug/g					
cis-1,3-Dichloropropylene	ND	0.05	ug/g					
trans-1,3-Dichloropropylene	ND	0.05	ug/g					
1,3-Dichloropropene, total	ND	0.05	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.05	ug/g					
Hexane	ND	0.05	ug/g					
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g					
Methyl Isobutyl Ketone	ND	0.50	ug/g					
Methyl tert-butyl ether	ND	0.05	ug/g					
Methylene Chloride	ND	0.05	ug/g					
Styrene	ND	0.05	ug/g					
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g					
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g					
Tetrachloroethylene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1-Trichloroethane	ND	0.05	ug/g					
1,1,2-Trichloroethane	ND	0.05	ug/g					
Trichloroethylene	ND	0.05	ug/g					
Trichlorofluoromethane	ND	0.05	ug/g					
Vinyl chloride	ND	0.02	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: 4-Bromofluorobenzene	*6.38*		*ug/g*	*79.7*	*50-140*			
Surrogate: Dibromofluoromethane	*7.48*		*ug/g*	*93.5*	*50-140*			
Surrogate: Toluene-d8	*9.54*		*ug/g*	*119*	*50-140*			
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	*9.57*		*ug/g*	*120*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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)	ND	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	3.0	1.0	ug/g	2.7			12.4	30	
Barium	315	1.0	ug/g	304			3.5	30	
Beryllium	0.8	0.5	ug/g	0.7			14.5	30	
Boron, available	ND	0.5	ug/g	ND			NC	35	
Boron	6.4	5.0	ug/g	6.0			6.9	30	
Cadmium	1.9	0.5	ug/g	1.8			4.1	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	78.7	5.0	ug/g	67.0			16.0	30	
Cobalt	15.3	1.0	ug/g	13.2			14.8	30	
Copper	156	5.0	ug/g	152			2.4	30	
Lead	112	1.0	ug/g	108			3.2	30	
Mercury	2.17	0.1	ug/g	2.19			1.0	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	42.9	5.0	ug/g	36.7			15.7	30	
Selenium	ND	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	1.4	1.0	ug/g	1.4			1.5	30	
Vanadium	73.9	10.0	ug/g	68.7			7.3	30	
Zinc	308	20.0	ug/g	296			4.0	30	
PCBs									
PCBs, total	ND	0.05	ug/g	ND			NC	40	
Surrogate: Decachlorobiphenyl	*0.106*		*ug/g*		*90.7*	*60-140*			
Physical Characteristics									

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
% Solids	83.3	0.1	% by Wt.	83.5			0.2	25	
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	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: 4-Bromofluorobenzene	*8.54*		*ug/g*		*97.2*	*50-140*			
Surrogate: Dibromofluoromethane	*9.03*		*ug/g*		*103*	*50-140*			
Surrogate: Toluene-d8	*11.0*		*ug/g*		*122*	*50-140*			
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	*11.2*		*ug/g*		*123*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	164	7	ug/g	ND	81.9	80-120			
F2 PHCs (C10-C16)	103	4	ug/g	ND	108	60-140			
F3 PHCs (C16-C34)	270	8	ug/g	ND	115	60-140			
F4 PHCs (C34-C50)	182	6	ug/g	ND	122	60-140			
F4G PHCs (gravimetric)	1010	50	ug/g	ND	101	80-120			
Metals									
Antimony	35.5	1.0	ug/g	ND	70.1	70-130			
Arsenic	49.5	1.0	ug/g	2.5	94.0	70-130			
Barium	160	1.0	ug/g	121	76.5	70-130			
Beryllium	47.9	0.5	ug/g	ND	95.2	70-130			
Boron, available	42.3	0.5	ug/g	ND	84.6	70-122			
Boron	46.1	5.0	ug/g	ND	86.1	70-130			
Cadmium	44.1	0.5	ug/g	0.7	86.7	70-130			
Chromium (VI)	2.8	0.2	ug/g	ND	47.5	70-130			QM-05
Chromium	85.1	5.0	ug/g	38.7	92.8	70-130			
Cobalt	52.1	1.0	ug/g	6.1	91.9	70-130			
Copper	99.8	5.0	ug/g	60.9	77.8	70-130			
Lead	81.9	1.0	ug/g	43.4	77.0	70-130			
Mercury	3.69	0.1	ug/g	2.19	99.7	70-130			
Molybdenum	45.8	1.0	ug/g	ND	90.2	70-130			
Nickel	64.6	5.0	ug/g	19.4	90.4	70-130			
Selenium	44.8	1.0	ug/g	ND	89.2	70-130			
Silver	51.1	0.3	ug/g	7.3	87.6	70-130			
Thallium	44.8	1.0	ug/g	ND	89.3	70-130			
Uranium	48.9	1.0	ug/g	ND	96.7	70-130			
Vanadium	76.6	10.0	ug/g	27.5	98.3	70-130			
Zinc	79.9	20.0	ug/g	28.3	103	70-130			
PCBs									
PCBs, total	0.355	0.05	ug/g	ND	76.3	60-140			
Surrogate: Decachlorobiphenyl	*0.0994*		*ug/g*		*85.4*	*60-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	7.63	0.50	ug/g	ND	76.3	50-140			
Benzene	3.37	0.02	ug/g	ND	84.4	60-130			
Bromodichloromethane	3.33	0.05	ug/g	ND	83.2	60-130			
Bromoform	2.77	0.05	ug/g	ND	69.3	60-130			
Bromomethane	2.77	0.05	ug/g	ND	69.3	50-140			
Carbon Tetrachloride	2.76	0.05	ug/g	ND	69.0	60-130			
Chlorobenzene	2.78	0.05	ug/g	ND	69.6	60-130			
Chloroform	2.69	0.05	ug/g	ND	67.4	60-130			
Dibromochloromethane	2.61	0.05	ug/g	ND	65.3	60-130			
Dichlorodifluoromethane	2.67	0.05	ug/g	ND	66.7	50-140			
1,2-Dichlorobenzene	3.45	0.05	ug/g	ND	86.3	60-130			
1,3-Dichlorobenzene	2.74	0.05	ug/g	ND	68.4	60-130			
1,4-Dichlorobenzene	2.96	0.05	ug/g	ND	73.9	60-130			
1,1-Dichloroethane	3.28	0.05	ug/g	ND	82.1	60-130			
1,2-Dichloroethane	2.68	0.05	ug/g	ND	67.0	60-130			
1,1-Dichloroethylene	4.21	0.05	ug/g	ND	105	60-130			
cis-1,2-Dichloroethylene	2.93	0.05	ug/g	ND	73.3	60-130			
trans-1,2-Dichloroethylene	3.48	0.05	ug/g	ND	87.0	60-130			
1,2-Dichloropropane	4.34	0.05	ug/g	ND	109	60-130			
cis-1,3-Dichloropropylene	2.72	0.05	ug/g	ND	67.9	60-130			
trans-1,3-Dichloropropylene	4.35	0.05	ug/g	ND	109	60-130			
Ethylbenzene	2.67	0.05	ug/g	ND	66.8	60-130			
Ethylene dibromide (dibromoethane, 1,2-)	2.67	0.05	ug/g	ND	66.8	60-130			
Hexane	3.78	0.05	ug/g	ND	94.6	60-130			
Methyl Ethyl Ketone (2-Butanone)	7.92	0.50	ug/g	ND	79.2	50-140			
Methyl Isobutyl Ketone	8.64	0.50	ug/g	ND	86.4	50-140			
Methyl tert-butyl ether	8.04	0.05	ug/g	ND	80.4	50-140			
Methylene Chloride	2.95	0.05	ug/g	ND	73.8	60-130			
Styrene	2.95	0.05	ug/g	ND	73.8	60-130			
1,1,1,2-Tetrachloroethane	2.75	0.05	ug/g	ND	68.8	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,2,2-Tetrachloroethane	2.93	0.05	ug/g	ND	73.3	60-130			
Tetrachloroethylene	3.02	0.05	ug/g	ND	75.5	60-130			
Toluene	2.99	0.05	ug/g	ND	74.8	60-130			
1,1,1-Trichloroethane	2.83	0.05	ug/g	ND	70.6	60-130			
1,1,2-Trichloroethane	4.23	0.05	ug/g	ND	106	60-130			
Trichloroethylene	4.21	0.05	ug/g	ND	105	60-130			
Trichlorofluoromethane	2.68	0.05	ug/g	ND	67.0	50-140			
Vinyl chloride	3.12	0.02	ug/g	ND	78.0	50-140			
m,p-Xylenes	5.45	0.05	ug/g	ND	68.1	60-130			
o-Xylene	2.78	0.05	ug/g	ND	69.5	60-130			
Surrogate: 4-Bromofluorobenzene	*8.10*		*ug/g*		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*7.69*		*ug/g*		*96.1*	*50-140*			
Surrogate: Toluene-d8	*8.10*		*ug/g*		*101*	*50-140*			
Benzene	3.37	0.02	ug/g	ND	84.4	60-130			
Ethylbenzene	2.67	0.05	ug/g	ND	66.8	60-130			
Toluene	2.99	0.05	ug/g	ND	74.8	60-130			
m,p-Xylenes	5.45	0.05	ug/g	ND	68.1	60-130			
o-Xylene	2.78	0.05	ug/g	ND	69.5	60-130			
Surrogate: Toluene-d8	*8.10*		*ug/g*		*101*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Container and COC sample IDs don't match - vial- ID reads 21-1-1 and coc reads 22-1-1

Applies to Samples: 22-1-1

QC Qualifiers :

QM-05: The spike recovery was outside acceptance limits for the matrix spike due to matrix interference.

Sample Qualifiers :

2: GC-FID signal did not return to baseline by C50

Sample Data Revisions:

None

Certificate of Analysis

Report Date: 19-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 13-Apr-2022

Client PO: 1901204

Project Description: 1901204

Work Order Revisions / Comments:

Revision-1 This report includes an updated reporting format as per the client.

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 unlesss 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 liabilty 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.

PARACEL LABORATORIES LTD

Paracel ID: 2216368

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2216368	№ 65489

Client Name: Palmer Environmental Consulting Group
Contact Name: S. Babiarz
Address: 74 Berkeley St, Toronto, M5A 2W7
Telephone: 647 862 7310

Project Ref: 1901204
Quote #: 21-438 Palmer 21293
PO #:
E-mail: Silvia.babiarz@pecg.ca; Khalina.naydenova@pecg.ca; Sarah.Spake@pecg.ca

Page 1 of 2

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required: Apr 15/22

☐ REG 153/04 ☐ REG 406/19

Other Regulation	
☐ REG 558	☐ PWQO
☐ CCME	☐ MISA
☐ SU - Sani	☐ SU - Storm
Mun:	
☐ Other:	

☐ Table 1 ☒ Res/Park ☐ Med/Fine
☐ Table 2 ☒ Ind/Comm ☐ Coarse
☒ Table 3 ☐ Agri/Other
☐ Table ___
For RSC: ☐ Yes ☐ No

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: Date	Sample Taken: Time	ATC NOC	ATC BTEX	Metals	PCB
1	22-1-1	Soil		2	Apr 11/22	10:30am	✓			
2	22-2-2			2		11:00	✓			
3	22-2-2D			2		11:30	✓			
4	22-6-3			2		12:00			✓	✓
5	22-6-3D			2		12:30			✓	✓
6	22-6-5			2		1:00		✓		
7	22-6-5D			2		2:00		✓		
8										
9										
10										

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): S. Babiarz	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): S Babiarz	Date/Time: Apr 13/22 8:00	Date/Time: April 14, 22 12:50	Date/Time: April 14, 22 12:53
Date/Time: Apr 12/22	Temperature: 6.1 °C	Temperature: 10.0 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD.

Paracel ID: 2216368

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only) № 135156

Client Name: Palmer Environmental Consulting Group	Project Ref: 1901204
Contact Name: S. Babiarz	Quote #: 21-438 Palmer 21293
Address: 74 Berkeley St, Toronto, M5A 2W7	PO #: 1901204
Telephone: 647 882 7310	E-mail: Sylwia.Babiarz@pecg.ca; halina.naydenova@pecg.ca; Sarah.Sipak@pecg.ca

Page 2 of 2

Turnaround Time

☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular

Date Required: Apr 15/22

☒ REG 153/04 ☐ REG 406/19

Other Regulation

☐ Table 1 ☒ Res/Park ☐ Med/Fine ☐ REG 558 ☐ PWQO

☐ Table 2 ☒ Ind/Comm ☐ Coarse ☐ CCME ☐ MISA

☒ Table 3 ☐ Agri/Other ☐ SU - Sani ☐ SU - Storm

☐ Table ___ Mun: ___

For RSC: ☐ Yes ☐ No ☐ 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: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	✓PHC NDC				
1 22-3-5	Soil		2	Apr 12/22	11:00 am												
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): S. Babiarz	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): S. Babiarz	Date/Time: Apr 13/22 8:00	Date/Time: April 14, 22 12:50	Date/Time: April 14, 22 12:53
Date/Time: Apr 12 @ 6:39 pm	Temperature: 6.1 °C	Temperature: 10.0 °C	pH Verified: ☐ By:

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Hamilton, ON L8H 7P4
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Palmer Environmental Consulting Group Inc.
74 Berkeley Street
Toronto, ON M5A 2W7
Attn: Sylvia Babiarz

Client PO: 1901204
Project: 1901204
Custody: 63666

Report Date: 26-Apr-2022
Order Date: 21-Apr-2022

Order #: 2217329

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

Paracel ID	Client ID
2217329-01	22-4
2217329-02	22-5
2217329-03	22-5D
2217329-04	TRIP BLANK

Approved By:



Alex Enfield, MSc
Lab Manager

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	26-Apr-22	26-Apr-22
Chromium, hexavalent - water	MOE E3056 - colourimetric	26-Apr-22	26-Apr-22
PHC F1	CWS Tier 1 - P&T GC-FID	25-Apr-22	26-Apr-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	25-Apr-22	25-Apr-22
REG 153: Mercury by CVAA	EPA 245.2 - Cold Vapour AA	26-Apr-22	26-Apr-22
REG 153: Metals by ICP/MS, water	EPA 200.8, ICP-MS	24-Apr-22	24-Apr-22
REG 153: VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	26-Apr-22	26-Apr-22

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 -T3 Non-Potable Groundwater, coarse	Reg 153/04 -T3 Non-Potable Groundwater, fine

Certificate of Analysis

Report Date: 26-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 21-Apr-2022

Client PO: 1901204

Project Description: 1901204

	Client ID:	22-4	22-5	22-5D	TRIP BLANK	Criteria:	
	Sample Date:	20-Apr-22 15:00	20-Apr-22 16:00	20-Apr-22 16:00	20-Apr-22 16:00	Reg 153/04 -T3 Non-Potable Groundwater, coarse	Reg 153/04 -T3 Non-Potable Groundwater, fine
	Sample ID:	2217329-01	2217329-02	2217329-03	2217329-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Metals							
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	-	0.29 ug/L	2.8 ug/L
Antimony	0.5 ug/L	<0.5	<0.5	<0.5	-	20000 ug/L	20000 ug/L
Arsenic	1.0 ug/L	1.3	<1.0	<1.0	-	1900 ug/L	1900 ug/L
Barium	1.0 ug/L	108	107	114	-	29000 ug/L	29000 ug/L
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	-	67 ug/L	67 ug/L
Boron	10.0 ug/L	1300	58.4	34.1	-	45000 ug/L	45000 ug/L
Cadmium	0.2 ug/L	<0.2	<0.2	<0.2	-	2.7 ug/L	2.7 ug/L
Chromium (VI)	10 ug/L	<10	<10	<10	-	140 ug/L	140 ug/L
Chromium	1.0 ug/L	<1.0	<1.0	<1.0	-	810 ug/L	810 ug/L
Cobalt	0.5 ug/L	<0.5	<0.5	<0.5	-	66 ug/L	66 ug/L
Copper	0.5 ug/L	1.8	1.8	2.0	-	87 ug/L	87 ug/L
Lead	0.2 ug/L	<0.2	<0.2	<0.2	-	25 ug/L	25 ug/L
Molybdenum	0.5 ug/L	3.8	2.4	2.2	-	9200 ug/L	9200 ug/L
Nickel	1.0 ug/L	<1.0	<1.0	<1.0	-	490 ug/L	490 ug/L
Selenium	1.0 ug/L	<1.0	<1.0	<1.0	-	63 ug/L	63 ug/L
Silver	0.2 ug/L	0.4	1.0	0.3	-	1.5 ug/L	1.5 ug/L
Sodium	200 ug/L	157000	737000	817000	-	2300000 ug/L	2300000 ug/L
Thallium	0.5 ug/L	<0.5	<0.5	<0.5	-	510 ug/L	510 ug/L
Uranium	0.2 ug/L	1.9	1.3	1.4	-	420 ug/L	420 ug/L
Vanadium	0.5 ug/L	0.6	1.0	1.3	-	250 ug/L	250 ug/L
Zinc	5.0 ug/L	<5.0	<5.0	<5.0	-	1100 ug/L	1100 ug/L
Volatiles							
Acetone	5.0 ug/L	-	-	-	<5.0	130000 ug/L	130000 ug/L
Benzene	0.5 ug/L	-	-	-	<0.5	44 ug/L	430 ug/L
Bromodichloromethane	0.5 ug/L	-	-	-	<0.5	85000 ug/L	85000 ug/L

Certificate of Analysis

Report Date: 26-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 21-Apr-2022

Client PO: **1901204**

Project Description: 1901204

	Client ID:	22-4	22-5	22-5D	TRIP BLANK	Criteria:	
	Sample Date:	20-Apr-22 15:00	20-Apr-22 16:00	20-Apr-22 16:00	20-Apr-22 16:00	Reg 153/04 -T3 Non-Potable Groundwater, coarse	Reg 153/04 -T3 Non-Potable Groundwater, fine
	Sample ID:	2217329-01	2217329-02	2217329-03	2217329-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
Bromoform	0.5 ug/L	-	-	-	<0.5	380 ug/L	770 ug/L
Bromomethane	0.5 ug/L	-	-	-	<0.5	5.6 ug/L	56 ug/L
Carbon Tetrachloride	0.2 ug/L	-	-	-	<0.2	0.79 ug/L	8.4 ug/L
Chlorobenzene	0.5 ug/L	-	-	-	<0.5	630 ug/L	630 ug/L
Chloroform	0.5 ug/L	-	-	-	<0.5	2.4 ug/L	22 ug/L
Dibromochloromethane	0.5 ug/L	-	-	-	<0.5	82000 ug/L	82000 ug/L
Dichlorodifluoromethane	1.0 ug/L	-	-	-	<1.0	4400 ug/L	4400 ug/L
1,2-Dichlorobenzene	0.5 ug/L	-	-	-	<0.5	4600 ug/L	9600 ug/L
1,3-Dichlorobenzene	0.5 ug/L	-	-	-	<0.5	9600 ug/L	9600 ug/L
1,4-Dichlorobenzene	0.5 ug/L	-	-	-	<0.5	8 ug/L	67 ug/L
1,1-Dichloroethane	0.5 ug/L	-	-	-	<0.5	320 ug/L	3100 ug/L
1,2-Dichloroethane	0.5 ug/L	-	-	-	<0.5	1.6 ug/L	12 ug/L
1,1-Dichloroethylene	0.5 ug/L	-	-	-	<0.5	1.6 ug/L	17 ug/L
cis-1,2-Dichloroethylene	0.5 ug/L	-	-	-	<0.5	1.6 ug/L	17 ug/L
trans-1,2-Dichloroethylene	0.5 ug/L	-	-	-	<0.5	1.6 ug/L	17 ug/L
1,2-Dichloropropane	0.5 ug/L	-	-	-	<0.5	16 ug/L	140 ug/L
cis-1,3-Dichloropropylene	0.5 ug/L	-	-	-	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	-	-	-	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	-	-	-	<0.5	5.2 ug/L	45 ug/L
Ethylene dibromide (dibromoethane,	0.2 ug/L	-	-	-	<0.2	0.25 ug/L	0.83 ug/L
Ethylbenzene	0.5 ug/L	-	-	-	<0.5	2300 ug/L	2300 ug/L
Hexane	1.0 ug/L	-	-	-	<1.0	51 ug/L	520 ug/L
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	-	-	-	<5.0	470000 ug/L	1500000 ug/L
Methyl Isobutyl Ketone	5.0 ug/L	-	-	-	<5.0	140000 ug/L	580000 ug/L
Methyl tert-butyl ether	2.0 ug/L	-	-	-	<2.0	190 ug/L	1400 ug/L

	Client ID:	22-4	22-5	22-5D	TRIP BLANK	Criteria:	
	Sample Date:	20-Apr-22 15:00	20-Apr-22 16:00	20-Apr-22 16:00	20-Apr-22 16:00	**Reg 153/04 -T3 Non-Potable Groundwater, coarse**	**Reg 153/04 -T3 Non-Potable Groundwater, fine**
	Sample ID:	2217329-01	2217329-02	2217329-03	2217329-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
Methylene Chloride	5.0 ug/L	-	-	-	<5.0	610 ug/L	5500 ug/L
Styrene	0.5 ug/L	-	-	-	<0.5	1300 ug/L	9100 ug/L
1,1,1,2-Tetrachloroethane	0.5 ug/L	-	-	-	<0.5	3.3 ug/L	28 ug/L
1,1,2,2-Tetrachloroethane	0.5 ug/L	-	-	-	<0.5	3.2 ug/L	15 ug/L
Tetrachloroethylene	0.5 ug/L	-	-	-	<0.5	1.6 ug/L	17 ug/L
Toluene	0.5 ug/L	-	-	-	<0.5	18000 ug/L	18000 ug/L
1,1,1-Trichloroethane	0.5 ug/L	-	-	-	<0.5	640 ug/L	6700 ug/L
1,1,2-Trichloroethane	0.5 ug/L	-	-	-	<0.5	4.7 ug/L	30 ug/L
Trichloroethylene	0.5 ug/L	-	-	-	<0.5	1.6 ug/L	17 ug/L
Trichlorofluoromethane	1.0 ug/L	-	-	-	<1.0	2500 ug/L	2500 ug/L
Vinyl chloride	0.5 ug/L	-	-	-	<0.5	0.5 ug/L	1.7 ug/L
m,p-Xylenes	0.5 ug/L	-	-	-	<0.5	-	-
o-Xylene	0.5 ug/L	-	-	-	<0.5	-	-
Xylenes, total	0.5 ug/L	-	-	-	<0.5	4200 ug/L	4200 ug/L
Toluene-d8	Surrogate	-	-	-	109%	-	-
4-Bromofluorobenzene	Surrogate	-	-	-	99.1%	-	-
Dibromofluoromethane	Surrogate	-	-	-	65.8%	-	-
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-	44 ug/L	430 ug/L
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-	2300 ug/L	2300 ug/L
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-	18000 ug/L	18000 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	-	4200 ug/L	4200 ug/L
Toluene-d8	Surrogate	108%	109%	109%	-	-	-
Hydrocarbons							

Certificate of Analysis

Report Date: 26-Apr-2022

Client: **Palmer Environmental Consulting Group Inc.**

Order Date: 21-Apr-2022

Client PO: 1901204

Project Description: 1901204

	Client ID:	22-4	22-5	22-5D	TRIP BLANK	Criteria:	
	Sample Date:	20-Apr-22 15:00	20-Apr-22 16:00	20-Apr-22 16:00	20-Apr-22 16:00	Reg 153/04 -T3 Non-Potable Groundwater, coarse	Reg 153/04 -T3 Non-Potable Groundwater, fine
	Sample ID:	2217329-01	2217329-02	2217329-03	2217329-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Hydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-	750 ug/L	750 ug/L
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	-	150 ug/L	150 ug/L
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	-	500 ug/L	500 ug/L
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-	500 ug/L	500 ug/L

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								
Mercury	ND	0.1	ug/L					
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 (VI)	ND	10	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					
Volatiles								
Acetone	ND	5.0	ug/L					
Benzene	ND	0.5	ug/L					
Bromodichloromethane	ND	0.5	ug/L					
Bromoform	ND	0.5	ug/L					
Bromomethane	ND	0.5	ug/L					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Carbon Tetrachloride	ND	0.2	ug/L					
Chlorobenzene	ND	0.5	ug/L					
Chloroform	ND	0.5	ug/L					
Dibromochloromethane	ND	0.5	ug/L					
Dichlorodifluoromethane	ND	1.0	ug/L					
1,2-Dichlorobenzene	ND	0.5	ug/L					
1,3-Dichlorobenzene	ND	0.5	ug/L					
1,4-Dichlorobenzene	ND	0.5	ug/L					
1,1-Dichloroethane	ND	0.5	ug/L					
1,2-Dichloroethane	ND	0.5	ug/L					
1,1-Dichloroethylene	ND	0.5	ug/L					
cis-1,2-Dichloroethylene	ND	0.5	ug/L					
trans-1,2-Dichloroethylene	ND	0.5	ug/L					
1,2-Dichloropropane	ND	0.5	ug/L					
cis-1,3-Dichloropropylene	ND	0.5	ug/L					
trans-1,3-Dichloropropylene	ND	0.5	ug/L					
1,3-Dichloropropene, total	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.2	ug/L					
Hexane	ND	1.0	ug/L					
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L					
Methyl Isobutyl Ketone	ND	5.0	ug/L					
Methyl tert-butyl ether	ND	2.0	ug/L					
Methylene Chloride	ND	5.0	ug/L					
Styrene	ND	0.5	ug/L					
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L					
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L					
Tetrachloroethylene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
1,1,1-Trichloroethane	ND	0.5	ug/L					
1,1,2-Trichloroethane	ND	0.5	ug/L					
Trichloroethylene	ND	0.5	ug/L					
Trichlorofluoromethane	ND	1.0	ug/L					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Vinyl chloride	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: 4-Bromofluorobenzene	*87.3*		*ug/L*	*109*	*50-140*			
Surrogate: Dibromofluoromethane	*70.2*		*ug/L*	*87.7*	*50-140*			
Surrogate: Toluene-d8	*86.5*		*ug/L*	*108*	*50-140*			
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	*86.5*		*ug/L*	*108*	*50-140*			

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	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	1.3	1.0	ug/L	1.3			5.2	20	
Barium	108	1.0	ug/L	108			0.6	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	1300	10.0	ug/L	1300			0.2	20	
Cadmium	ND	0.2	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1.0	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	2.0	0.5	ug/L	1.8			10.7	20	
Lead	ND	0.2	ug/L	ND			NC	20	
Molybdenum	4.0	0.5	ug/L	3.8			4.4	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	0.4			NC	20	
Sodium	159000	200	ug/L	157000			1.1	20	
Thallium	ND	0.5	ug/L	ND			NC	20	
Uranium	1.9	0.2	ug/L	1.9			3.5	20	
Vanadium	0.6	0.5	ug/L	0.6			4.4	20	
Zinc	ND	5.0	ug/L	ND			NC	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*78.4*		*ug/L*		*98.0*	*50-140*			
Surrogate: Dibromofluoromethane	*50.5*		*ug/L*		*63.1*	*50-140*			
Surrogate: Toluene-d8	*87.5*		*ug/L*		*109*	*50-140*			
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*87.5*		*ug/L*		*109*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	734	25	ug/L	ND	104	68-117			
F2 PHCs (C10-C16)	1760	100	ug/L	ND	106	60-140			
F3 PHCs (C16-C34)	4290	100	ug/L	ND	116	60-140			
F4 PHCs (C34-C50)	2500	100	ug/L	ND	93.6	60-140			
Metals									
Mercury	3.24	0.1	ug/L	ND	108	70-130			
Antimony	46.2	0.5	ug/L	ND	92.3	70-130			
Arsenic	53.4	1.0	ug/L	1.3	104	70-130			
Barium	149	1.0	ug/L	108	83.1	70-130			
Beryllium	46.3	0.5	ug/L	ND	92.6	70-130			
Boron	1120	10.0	ug/L	1300	-355	70-130			QM-07
Cadmium	45.8	0.2	ug/L	ND	91.7	70-130			
Chromium (VI)	204	10	ug/L	ND	102	70-130			
Chromium	43.3	1.0	ug/L	ND	86.5	70-130			
Cobalt	42.1	0.5	ug/L	ND	84.2	70-130			
Copper	46.3	0.5	ug/L	1.8	89.0	70-130			
Lead	44.7	0.2	ug/L	ND	89.5	70-130			
Molybdenum	49.8	0.5	ug/L	3.8	92.0	70-130			
Nickel	45.5	1.0	ug/L	ND	91.0	70-130			
Selenium	47.1	1.0	ug/L	ND	94.2	70-130			
Silver	37.1	0.2	ug/L	0.4	73.4	70-130			
Sodium	156000	200	ug/L	157000	-62.1	70-130			QM-07
Thallium	45.9	0.5	ug/L	ND	91.8	70-130			
Uranium	47.8	0.2	ug/L	1.9	91.7	70-130			
Vanadium	46.3	0.5	ug/L	0.6	91.3	70-130			
Zinc	48.6	5.0	ug/L	ND	97.3	70-130			
Volatiles									
Acetone	110	5.0	ug/L	ND	110	50-140			
Benzene	40.8	0.5	ug/L	ND	101	50-140			
Bromodichloromethane	35.8	0.5	ug/L	ND	89.0	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromoform	37.4	0.5	ug/L	ND	93.0	50-140			
Bromomethane	51.2	0.5	ug/L	ND	128	50-140			
Carbon Tetrachloride	35.5	0.2	ug/L	ND	88.7	50-140			
Chlorobenzene	42.4	0.5	ug/L	ND	106	50-140			
Chloroform	40.4	0.5	ug/L	ND	100	50-140			
Dibromochloromethane	38.1	0.5	ug/L	ND	95.4	50-140			
Dichlorodifluoromethane	49.6	1.0	ug/L	ND	124	50-140			
1,2-Dichlorobenzene	40.9	0.5	ug/L	ND	102	50-140			
1,3-Dichlorobenzene	41.5	0.5	ug/L	ND	104	50-140			
1,4-Dichlorobenzene	41.0	0.5	ug/L	ND	102	50-140			
1,1-Dichloroethane	40.7	0.5	ug/L	ND	102	50-140			
1,2-Dichloroethane	38.7	0.5	ug/L	ND	96.2	50-140			
1,1-Dichloroethylene	37.3	0.5	ug/L	ND	93.2	50-140			
cis-1,2-Dichloroethylene	37.3	0.5	ug/L	ND	92.7	50-140			
trans-1,2-Dichloroethylene	34.9	0.5	ug/L	ND	86.9	50-140			
1,2-Dichloropropane	39.0	0.5	ug/L	ND	97.6	50-140			
cis-1,3-Dichloropropylene	37.8	0.5	ug/L	ND	94.5	50-140			
trans-1,3-Dichloropropylene	38.7	0.5	ug/L	ND	96.3	50-140			
Ethylbenzene	43.7	0.5	ug/L	ND	109	50-140			
Ethylene dibromide (dibromoethane, 1,2-)	37.6	0.2	ug/L	ND	93.4	50-140			
Hexane	42.8	1.0	ug/L	ND	107	50-140			
Methyl Ethyl Ketone (2-Butanone)	98.0	5.0	ug/L	ND	98.0	50-140			
Methyl Isobutyl Ketone	107	5.0	ug/L	ND	107	50-140			
Methyl tert-butyl ether	93.9	2.0	ug/L	ND	93.9	50-140			
Methylene Chloride	38.6	5.0	ug/L	ND	96.1	50-140			
Styrene	42.7	0.5	ug/L	ND	106	50-140			
1,1,1,2-Tetrachloroethane	38.5	0.5	ug/L	ND	96.2	50-140			
1,1,2,2-Tetrachloroethane	37.9	0.5	ug/L	ND	94.2	50-140			
Tetrachloroethylene	42.6	0.5	ug/L	ND	105	50-140			
Toluene	42.5	0.5	ug/L	ND	106	50-140			
1,1,1-Trichloroethane	36.2	0.5	ug/L	ND	90.4	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,2-Trichloroethane	39.3	0.5	ug/L	ND	97.7	50-140			
Trichloroethylene	38.8	0.5	ug/L	ND	96.5	50-140			
Trichlorofluoromethane	42.5	1.0	ug/L	ND	106	50-140			
Vinyl chloride	44.4	0.5	ug/L	ND	111	50-140			
m,p-Xylenes	84.7	0.5	ug/L	ND	106	50-140			
o-Xylene	42.6	0.5	ug/L	ND	106	50-140			
Surrogate: 4-Bromofluorobenzene	*76.7*		*ug/L*		*95.9*	*50-140*			
Surrogate: Dibromofluoromethane	*107*		*ug/L*		*134*	*50-140*			
Surrogate: Toluene-d8	*79.0*		*ug/L*		*98.7*	*50-140*			
Benzene	40.8	0.5	ug/L	ND	101	50-140			
Ethylbenzene	43.7	0.5	ug/L	ND	109	50-140			
Toluene	42.5	0.5	ug/L	ND	106	50-140			
m,p-Xylenes	84.7	0.5	ug/L	ND	106	50-140			
o-Xylene	42.6	0.5	ug/L	ND	106	50-140			
Surrogate: Toluene-d8	*79.0*		*ug/L*		*98.7*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-07: The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

S-GC: Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

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 liabilty 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.

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Chain Of Custody
(Lab Use Only)
№ 63666

Client Name: Palmer Environmental Consulting Group	Project Ref: 1401204	Page 1 of 1
Contact Name: S. Kabiarz	Quote #: 21-435 Palmer 21293	**Turnaround Time**
Address: 74 Berkeley St, Toronto, M5A 2W7	PO #: 1901204	☐ 1 day ☐ 3 day
	E-mail: Sylvia.kabiarz@pecg.ca; Khalina.rmayfenova@pecg.ca; Sarah.sipak@pecg.ca	☐ 2 day ☒ Regular
Telephone: 647 882 7310		Date Required: April 26/22

☒ REG 153/04 ☐ REG 406/19	Other Regulation
☐ Table 1 ☒ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☒ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table ___	Mun: ___
For RSC: ☐ Yes ☐ No	☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analysis: PHC/BTEX	Metals	VOC
1	22-4	GW		6	April 21/22	3:00 pm	✓	✓	
2	22-5			6		4:00 pm	✓	✓	
3	22-SD			6		4:00 pm	✓	✓	
4	TRIP BLANK			1		4:00 pm			✓
5									
6									
7									
8									
9									
10									

Comments: Metals field filtered - compare to Table 3 (O. Reg 153) RPICC

Method of Delivery: Drop Box

Relinquished By (Sign): S. Kabiarz	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): S. Kabiarz	Date/Time: April 21/22 8.00	Date/Time: April 22/22 9:57	Date/Time: April 22/22 9:53
Date/Time: April 20/22 @ 7:25pm	Temperature: 9.9 °C	Temperature: 6.8 °C	pH Verified: ☐ By:

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Paracel ID: 2217329

Chain Of Custody
(Lab Use Only)
№ 63666

Client Name: Palmer Environmental Consulting Group	Project Ref: 1401204	Page 1 of 1
Contact Name: S. Kabiarz	Quote #: 21-435 Palmer 21293	**Turnaround Time**
Address: 74 Berkeley St, Toronto, M5A 2W7	PO #: 1901204	☐ 1 day ☐ 3 day
	E-mail: Sylna.kabiarz@pecg.ca; Kalina.mraydenova@pecg.ca; Sarah.sipak@pecg.ca	☐ 2 day ☒ Regular
Telephone: 647 882 7310		Date Required: April 26/22

☒ 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	☐ REG,558 ☐ PWQO		
☐ Table 2 ☒ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA		
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm		
☐ Table ___	Mun: ___		
For RSC: ☐ Yes ☐ No	☐ Other:		

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHC/BTEX	Metals	VOC
1	22-4	GW		6	April 26/22	3:00 pm	✓	✓	
2	22-5			6		4:00 pm	✓	✓	
3	22-SD			6		4:00 pm	✓	✓	
4	TRIP BLANK	↓		1	↓	4:00 pm			✓
5									
6									
7									
8									
9									
10									

Comments: Metals field filtered - compare to Table 3 (O. Reg 153) RPICC

Method of Delivery: Drop Box

Relinquished By (Sign): S. Kabiarz	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): S. Kabiarz	Date/Time: April 21/22 8.00	Date/Time: April 22/22 9:57	Date/Time: April 22/22 9:53
Date/Time: April 26/22 @ 7:25pm	Temperature: 9.9 °C	Temperature: 6.8 °C	pH Verified: ☐ By: CP

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Certificate of Analysis

Palmer Environmental Consulting Group Inc.

74 Berkeley Street
Toronto, ON M5A 2W7
Attn: Sylvia Babiarz

Client PO: 1901204
Project: 1901204
Custody: 63667

Report Date: 29-Apr-2022
Order Date: 22-Apr-2022

Order #: 2218054

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

Paracel ID	Client ID
2218054-01	22-1
2218054-02	22-3
2218054-03	22-3D
2218054-04	22-6
2218054-05	22-6D

Approved By:



Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liabilty 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.

Certificate of Analysis

Report Date: 29-Apr-2022

Client: Palmer Environmental Consulting Group Inc.

Order Date: 22-Apr-2022

Client PO: 1901204

Project Description: 1901204

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PCBs, total	EPA 608 - GC-ECD	29-Apr-22	29-Apr-22
PHC F1	CWS Tier 1 - P&T GC-FID	25-Apr-22	26-Apr-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	26-Apr-22	27-Apr-22
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	25-Apr-22	26-Apr-22

Certificate of Analysis

Report Date: 29-Apr-2022

Client: Palmer Environmental Consulting Group Inc.

Order Date: 22-Apr-2022

Client PO: 1901204

Project Description: 1901204

	Client ID:	22-1	22-3	22-3D	22-6
	Sample Date:	21-Apr-22 12:00	21-Apr-22 14:00	21-Apr-22 14:00	21-Apr-22 16:00
	Sample ID:	2218054-01	2218054-02	2218054-03	2218054-04
	MDL/Units	Ground Water	Ground Water	Ground Water	Ground Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	-
Benzene	0.5 ug/L	<0.5	1.3	1.0	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2	-
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	-
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-

Certificate of Analysis

Report Date: 29-Apr-2022

Client: Palmer Environmental Consulting Group Inc.

Order Date: 22-Apr-2022

Client PO: 1901204

Project Description: 1901204

	Client ID:	22-1	22-3	22-3D	22-6
	Sample Date:	21-Apr-22 12:00	21-Apr-22 14:00	21-Apr-22 14:00	21-Apr-22 16:00
	Sample ID:	2218054-01	2218054-02	2218054-03	2218054-04
	MDL/Units	Ground Water	Ground Water	Ground Water	Ground Water
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	-
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	-
4-Bromofluorobenzene	Surrogate	112%	112%	114%	-
Dibromofluoromethane	Surrogate	106%	99.4%	99.6%	-
Toluene-d8	Surrogate	110%	110%	109%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-
PCBs					
PCBs, total	0.05 ug/L	-	-	-	<0.10 [1]
Decachlorobiphenyl	Surrogate	-	-	-	111% [1]

	Client ID:	22-6D	-	-	-
	Sample Date:	21-Apr-22 16:00	-	-	-
	Sample ID:	2218054-05	-	-	-
	MDL/Units	Ground Water	-	-	-
PCBs					
PCBs, total	0.05 ug/L	<0.10 [1]	-	-	-
Decachlorobiphenyl	Surrogate	93.7% [1]	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%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						
PCBs									
PCBs, total	ND	0.05	ug/L						
Surrogate: Decachlorobiphenyl	*0.277*		*ug/L*		*111*	*60-140*			
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	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: 4-Bromofluorobenzene	*91.6*		*ug/L*		*115*	*50-140*			
Surrogate: Dibromofluoromethane	*86.5*		*ug/L*		*108*	*50-140*			
Surrogate: Toluene-d8	*87.8*		*ug/L*		*110*	*50-140*			

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	ND			NC	30	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*91.2*		*ug/L*		*114*	*50-140*			
Surrogate: Dibromofluoromethane	*82.8*		*ug/L*		*104*	*50-140*			
Surrogate: Toluene-d8	*87.0*		*ug/L*		*109*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1800	25	ug/L	ND	89.9	68-117			
F2 PHCs (C10-C16)	1430	100	ug/L	ND	89.5	60-140			
F3 PHCs (C16-C34)	3550	100	ug/L	ND	90.6	60-140			
F4 PHCs (C34-C50)	2520	100	ug/L	ND	102	60-140			
PCBs									
PCBs, total	0.667	0.05	ug/L	ND	66.7	65-135			
Surrogate: Decachlorobiphenyl	*0.256*		*ug/L*		*102*	*60-140*			
Volatiles									
Acetone	74.3	5.0	ug/L	ND	74.3	50-140			
Benzene	43.4	0.5	ug/L	ND	108	60-130			
Bromodichloromethane	32.8	0.5	ug/L	ND	81.9	60-130			
Bromoform	37.0	0.5	ug/L	ND	92.5	60-130			
Bromomethane	37.8	0.5	ug/L	ND	94.5	50-140			
Carbon Tetrachloride	40.4	0.2	ug/L	ND	101	60-130			
Chlorobenzene	32.1	0.5	ug/L	ND	80.2	60-130			
Chloroform	33.4	0.5	ug/L	ND	83.5	60-130			
Dibromochloromethane	35.7	0.5	ug/L	ND	89.2	60-130			
Dichlorodifluoromethane	37.4	1.0	ug/L	ND	93.6	50-140			
1,2-Dichlorobenzene	34.6	0.5	ug/L	ND	86.4	60-130			
1,3-Dichlorobenzene	32.8	0.5	ug/L	ND	82.1	60-130			
1,4-Dichlorobenzene	36.0	0.5	ug/L	ND	90.0	60-130			
1,1-Dichloroethane	34.8	0.5	ug/L	ND	86.9	60-130			
1,2-Dichloroethane	32.2	0.5	ug/L	ND	80.4	60-130			
1,1-Dichloroethylene	39.2	0.5	ug/L	ND	98.0	60-130			
cis-1,2-Dichloroethylene	33.9	0.5	ug/L	ND	84.8	60-130			
trans-1,2-Dichloroethylene	42.2	0.5	ug/L	ND	105	60-130			
1,2-Dichloropropane	34.0	0.5	ug/L	ND	85.0	60-130			
cis-1,3-Dichloropropylene	34.8	0.5	ug/L	ND	87.1	60-130			
trans-1,3-Dichloropropylene	32.2	0.5	ug/L	ND	80.4	60-130			
Ethylbenzene	29.8	0.5	ug/L	ND	74.4	60-130			
Ethylene dibromide (dibromoethane, 1,2-	31.2	0.2	ug/L	ND	78.1	60-130			
Hexane	29.7	1.0	ug/L	ND	74.2	60-130			
Methyl Ethyl Ketone (2-Butanone)	75.6	5.0	ug/L	ND	75.6	50-140			
Methyl Isobutyl Ketone	78.0	5.0	ug/L	ND	78.0	50-140			
Methyl tert-butyl ether	97.4	2.0	ug/L	ND	97.4	50-140			
Methylene Chloride	35.5	5.0	ug/L	ND	88.8	60-130			
Styrene	30.7	0.5	ug/L	ND	76.8	60-130			
1,1,1,2-Tetrachloroethane	32.7	0.5	ug/L	ND	81.7	60-130			
1,1,2,2-Tetrachloroethane	40.2	0.5	ug/L	ND	100	60-130			
Tetrachloroethylene	34.8	0.5	ug/L	ND	87.1	60-130			
Toluene	40.7	0.5	ug/L	ND	102	60-130			
1,1,1-Trichloroethane	37.3	0.5	ug/L	ND	93.3	60-130			
1,1,2-Trichloroethane	40.6	0.5	ug/L	ND	101	60-130			
Trichloroethylene	40.2	0.5	ug/L	ND	100	60-130			
Trichlorofluoromethane	38.7	1.0	ug/L	ND	96.8	60-130			
Vinyl chloride	35.4	0.5	ug/L	ND	88.4	50-140			
m,p-Xylenes	69.6	0.5	ug/L	ND	87.0	60-130			
o-Xylene	31.7	0.5	ug/L	ND	79.2	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	*95.0*		*ug/L*		*119*	*50-140*			
Surrogate: Dibromofluoromethane	*96.8*		*ug/L*		*121*	*50-140*			
Surrogate: Toluene-d8	*85.5*		*ug/L*		*107*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

1 : Elevated Reporting Limits due to limited sample volume.

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.

PARACEL LABORATORIES LTI

Paracel ID: 2218054

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2218054	№ 63667

Client Name: Palmer Environmental Consulting Group	Project Ref: 1901204	Page 1 of 1
Contact Name: S. Babiarz	Quote #: 21-438 Palmer 21293	Turnaround Time
Address: 74 Berkeley St, Toronto, M5A 2W7	PO #: 1901204	☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone: 647 882 4316	E-mail: sylna.babiarz@pecg.ca khalina.nayadenova@pecg.ca sarah.sipak@pecg.ca	Date Required: Apr 27/22

☒ 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)
☐ Table 1 ☒ Res/Park ☐ Med/Fine	☐ REG,558 ☐ PWQO	
☐ Table 2 ☒ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA	
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm	
☐ Table ___	Mun: ___	
For RSC: ☐ Yes ☐ No	☐ Other:	

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analysis: PHC/VOC	Required Analysis: PCB
1	22-1	GW		3	Apr 21/22	12:00 pm	✓	
2	22-3	↓		3	↓	2:00 pm	✓	
3	22-3D			3		2:00 pm	✓	
4	22-6			1		4:00 pm		✓
5	22-6D	↓		1	↓	4:00 pm		✓
6								
7								
8								
9								
10								

Comments: PCB bottles not entirely full - please proceed with analysis

Method of Delivery: Driver BR

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): S. Babiarz	Date/Time: Apr 22/22 8:00	Date/Time: Apr 23/22 1:15	Date/Time: Apr 25 2022 10:58
Date/Time: April 21/22 @ 5:30pm	Temperature: 5.8 °C	Temperature: 7.7 °C	pH Verified: ☐ By:

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Certificate of Analysis

Palmer Environmental Consulting Group Inc.

74 Berkeley Street
Toronto, ON M5A 2W7
Attn: Sylvia Babiarz

Client PO: 1907204
Project: 1901204
Custody: 67153

Report Date: 6-May-2022
Order Date: 29-Apr-2022

Revised Report

Order #: 2218594

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

Paracel ID	Client ID
2218594-01	22-6

Approved By:



Milan Ralitsch, PhD
Senior Technical Manager

Any use of these results implies your agreement that our total liabilty 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.

Certificate of Analysis

Client: Palmer Environmental Consulting Group Inc.

Client PO: 1907204

Report Date: 06-May-2022

Order Date: 29-Apr-2022

Project Description: 1901204

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	4-May-22	4-May-22
Chromium, hexavalent - water	MOE E3056 - colourimetric	5-May-22	5-May-22
PHC F1	CWS Tier 1 - P&T GC-FID	3-May-22	4-May-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	4-May-22	5-May-22
REG 153: Mercury by CVAA	EPA 245.2 - Cold Vapour AA	5-May-22	5-May-22
REG 153: Metals by ICP/MS, water	EPA 200.8, ICP-MS	2-May-22	2-May-22

Certificate of Analysis

Report Date: 06-May-2022

Client: Palmer Environmental Consulting Group Inc.

Order Date: 29-Apr-2022

Client PO: 1907204

Project Description: 1901204

	Client ID:	22-6	-	-	-
	Sample Date:	28-Apr-22 12:00	-	-	-
	Sample ID:	2218594-01	-	-	-
	MDL/Units	Ground Water	-	-	-
Metals					
Mercury	0.1 ug/L	<0.1	-	-	-
Antimony	0.5 ug/L	<0.5	-	-	-
Arsenic	1.0 ug/L	3.2	-	-	-
Barium	1.0 ug/L	86.5	-	-	-
Beryllium	0.5 ug/L	<0.5	-	-	-
Boron	10.0 ug/L	747	-	-	-
Cadmium	0.2 ug/L	<0.2	-	-	-
Chromium	1.0 ug/L	<1.0	-	-	-
Chromium (VI)	10 ug/L	<10	-	-	-
Cobalt	0.5 ug/L	<0.5	-	-	-
Copper	0.5 ug/L	0.8	-	-	-
Lead	0.2 ug/L	<0.2	-	-	-
Molybdenum	0.5 ug/L	178	-	-	-
Nickel	1.0 ug/L	<1.0	-	-	-
Selenium	1.0 ug/L	2.7	-	-	-
Silver	0.2 ug/L	<0.2	-	-	-
Sodium	200 ug/L	702000	-	-	-
Thallium	0.5 ug/L	<0.5	-	-	-
Uranium	0.2 ug/L	0.4	-	-	-
Vanadium	0.5 ug/L	49.4	-	-	-
Zinc	5.0 ug/L	<5.0	-	-	-
Volatiles					
Benzene	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
Toluene-d8	Surrogate	115%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%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									
Mercury	ND	0.1	ug/L						
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 (VI)	ND	10	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						
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	*92.0*		*ug/L*		*115*	*50-140*			

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	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	1.1	1.0	ug/L	ND			NC	20	
Barium	49.7	1.0	ug/L	49.8			0.1	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	73.9	10.0	ug/L	77.5			4.7	20	
Cadmium	ND	0.2	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1.0	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	4.5	0.5	ug/L	3.9			13.9	20	
Lead	1.0	0.2	ug/L	ND			NC	20	
Molybdenum	6.9	0.5	ug/L	6.6			5.3	20	
Nickel	1.5	1.0	ug/L	1.5			0.2	20	
Selenium	ND	1.0	ug/L	ND			NC	20	
Silver	ND	0.2	ug/L	ND			NC	20	
Sodium	33300	200	ug/L	33400			0.3	20	
Thallium	ND	0.5	ug/L	ND			NC	20	
Uranium	1.3	0.2	ug/L	0.9			NC	20	
Vanadium	0.8	0.5	ug/L	0.7			2.2	20	
Zinc	35.2	5.0	ug/L	24.9			NC	20	
Volatiles									
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*88.2*		*ug/L*		*110*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	599	25	ug/L	ND	84.7	68-117			
F2 PHCs (C10-C16)	1980	100	ug/L	ND	120	60-140			
F3 PHCs (C16-C34)	5120	100	ug/L	ND	138	60-140			
F4 PHCs (C34-C50)	2560	100	ug/L	ND	95.7	60-140			
Metals									
Mercury	2.26	0.1	ug/L	ND	75.2	70-130			
Antimony	47.8	0.5	ug/L	ND	95.5	70-130			
Arsenic	59.4	1.0	ug/L	ND	119	70-130			
Barium	101	1.0	ug/L	49.8	103	70-130			
Beryllium	55.7	0.5	ug/L	ND	111	70-130			
Boron	109	10.0	ug/L	77.5	62.4	70-130			QM-07
Cadmium	53.1	0.2	ug/L	ND	106	70-130			
Chromium (VI)	207	10	ug/L	ND	104	70-130			
Chromium	52.7	1.0	ug/L	ND	105	70-130			
Cobalt	51.4	0.5	ug/L	ND	103	70-130			
Copper	55.7	0.5	ug/L	3.9	104	70-130			
Lead	49.3	0.2	ug/L	ND	98.7	70-130			
Molybdenum	59.3	0.5	ug/L	6.6	105	70-130			
Nickel	54.0	1.0	ug/L	1.5	105	70-130			
Selenium	59.4	1.0	ug/L	ND	119	70-130			
Silver	48.1	0.2	ug/L	ND	96.1	70-130			
Sodium	31000	200	ug/L	33400	-243	70-130			QM-4X
Thallium	47.1	0.5	ug/L	ND	94.3	70-130			
Uranium	49.3	0.2	ug/L	0.9	96.7	70-130			
Vanadium	54.0	0.5	ug/L	0.7	107	70-130			
Zinc	78.0	5.0	ug/L	24.9	106	70-130			
Volatiles									
Benzene	37.8	0.5	ug/L	ND	94.0	50-140			
Ethylbenzene	35.2	0.5	ug/L	ND	87.5	50-140			
Toluene	36.5	0.5	ug/L	ND	91.2	50-140			
m,p-Xylenes	68.8	0.5	ug/L	ND	85.8	50-140			
o-Xylene	35.1	0.5	ug/L	ND	87.4	50-140			
Surrogate: Toluene-d8	*83.6*		*ug/L*		*104*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

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

Sample Data Revisions

None

Work Order Revisions / Comments:

REVISION-01: Project number has been corrected.

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.

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Client Name: Palmer Environmental Consulting Group	Project Ref: 190204	Page 1 of 1
Contact Name: Sylvia Babiarz	Quote #: 21-435 Palmer 21293	**Turnaround Time**
Address: 74 Berkeley St, Toronto, M5A 2W7	PO #: 190204	☐ 1 day ☐ 3 day
	E-mail: Sylvia.babiarz@pecg.ca Kalinda.naydenova@pecg.ca Sarah.spak@pecg.ca	☐ 2 day ☒ Regular
Telephone: 647 882 7310		Date Required: May 4/22

☒ 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)
☐ Table 1 ☒ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO	Required Analysis
☐ Table 2 ☒ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA	
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm	
☐ Table ___	Mun: ___	
For RSC: ☐ Yes ☐ No	☐ Other:	

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	VPH/BTEX	Metals										
1	22-6			6	Apr 28/22	12:00pm	✓	✓										
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments: metals field filtered

Method of Delivery: Drop Box

Relinquished By (Sign): SBabiarz	Received By Driver/Depot:	Received at Lab: BB	Verified By: BB
Relinquished By (Print): S. Babiarz	Date/Time: Apr 29/22 8:00	Date/Time: 29/04/2022 11:58	Date/Time: 29/04/2022 12:25
Date/Time: Apr 28/22	Temperature: 2.4 °C	Temperature: 8.0 °C	pH Verified: ☑ By: BB

PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
ATTN: CHLOE STEPHENSON
74 Berkeley Street
Toronto ON M5V 1E3

Date Received: 12-OCT-21
Report Date: 22-OCT-21 16:42 (MT)
Version: FINAL

Client Phone: 647-795-8153

Certificate of Analysis

Lab Work Order #: L2650739

Project P.O. #: 1901204
Job Reference: 1901204
C of C Numbers:
Legal Site Desc:

K Singh

KARANPARTAP SINGH
Account Manager

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Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit	Guideline

Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Soil-Res/Park/Inst. Property Use (Coarse)

(No parameter exceedances)

Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Soil-Res/Park/Inst. Property Use (Fine)

(No parameter exceedances)

Physical Tests - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID					
				L2650739-3	L2650739-4	L2650739-5	L2650739-6	L2650739-7	L2650739-8	L2650739-10	L2650739-11
				12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21
				21-1-4	21-2-1	21-2-1D	21-2-5	21-3-1	21-3-10	21-3-5	21-3-5D
Grain Size Curve		-	-				SEE ATTACHED				
% Moisture	%	-	-	9.21	12.4	15.4				12.0	11.0
pH	pH units	-	-	7.90				7.43	7.41		

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Particle Size - SOIL

			Lab ID	L2650739-6
			Sample Date	12-OCT-21
			Sample ID	21-2-5
Analyte	**Unit**	**Guide Limits #1**	**#2**	
Gravel (4.75mm - 3in.)	%	-	-	<1.0
Medium Sand (0.425mm - 2.0mm)	%	-	-	12.7
Coarse Sand (2.0mm - 4.75mm)	%	-	-	4.1
Fine Sand (0.075mm - 0.425mm)	%	-	-	12.3
Silt (0.002mm - 0.075mm)	%	-	-	47.2
Silt (0.005mm - 0.075mm)	%	-	-	37.4
Clay (<0.002mm)	%	-	-	23.5
Clay (<0.005mm)	%	-	-	33.3

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Metals - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID: L2650739-1	Lab ID: L2650739-2	Lab ID: L2650739-9
				Sample Date: 12-OCT-21	Sample Date: 12-OCT-21	Sample Date: 12-OCT-21
				Sample ID: 21-1-1	Sample ID: 21-1-1D	Sample ID: 21-3-2
Antimony (Sb)	ug/g	7.5	7.5	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	18	5.3	5.4	5.4
Barium (Ba)	ug/g	390	390	98.6	101	87.3
Beryllium (Be)	ug/g	4	5	0.74	0.65	0.74
Boron (B)	ug/g	120	120	10.6	11.0	10.3
Cadmium (Cd)	ug/g	1.2	1.2	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	160	160	22.0	19.4	22.1
Cobalt (Co)	ug/g	22	22	11.5	10.8	12.4
Copper (Cu)	ug/g	140	180	29.3	30.6	26.8
Lead (Pb)	ug/g	120	120	11.4	11.5	11.3
Molybdenum (Mo)	ug/g	6.9	6.9	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	100	130	25.1	22.4	26.7
Selenium (Se)	ug/g	2.4	2.4	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	20	25	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	1	<0.50	<0.50	<0.50
Uranium (U)	ug/g	23	23	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	86	31.6	29.1	32.4
Zinc (Zn)	ug/g	340	340	61.0	66.8	83.6

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Volatile Organic Compounds - SOIL

			Lab ID	L2650739-3	L2650739-4	L2650739-5	L2650739-10	L2650739-11
			Sample Date	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21
			Sample ID	21-1-4	21-2-1	21-2-1D	21-3-5	21-3-5D
		Guide Limits						
Analyte	Unit	#1	#2					
Acetone	ug/g	16	28		<0.50	<0.50		
Benzene	ug/g	0.21	0.17	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	ug/g	13	13		<0.050	<0.050		
Bromoform	ug/g	0.27	0.26		<0.050	<0.050		
Bromomethane	ug/g	0.05	0.05		<0.050	<0.050		
Carbon tetrachloride	ug/g	0.05	0.12		<0.050	<0.050		
Chlorobenzene	ug/g	2.4	2.7		<0.050	<0.050		
Dibromochloromethane	ug/g	9.4	9.4		<0.050	<0.050		
Chloroform	ug/g	0.05	0.18		<0.050	<0.050		
1,2-Dibromoethane	ug/g	0.05	0.05		<0.050	<0.050		
1,2-Dichlorobenzene	ug/g	3.4	4.3		<0.050	<0.050		
1,3-Dichlorobenzene	ug/g	4.8	6		<0.050	<0.050		
1,4-Dichlorobenzene	ug/g	0.083	0.097		<0.050	<0.050		
Dichlorodifluoromethane	ug/g	16	25		<0.050	<0.050		
1,1-Dichloroethane	ug/g	3.5	11		<0.050	<0.050		
1,2-Dichloroethane	ug/g	0.05	0.05		<0.050	<0.050		
1,1-Dichloroethylene	ug/g	0.05	0.05		<0.050	<0.050		
cis-1,2-Dichloroethylene	ug/g	3.4	30		<0.050	<0.050		
trans-1,2-Dichloroethylene	ug/g	0.084	0.75		<0.050	<0.050		
Methylene Chloride	ug/g	0.1	0.96		<0.050	<0.050		
1,2-Dichloropropane	ug/g	0.05	0.085		<0.050	<0.050		
cis-1,3-Dichloropropene	ug/g	-	-		<0.030	<0.030		
trans-1,3-Dichloropropene	ug/g	-	-		<0.030	<0.030		
1,3-Dichloropropene (cis & trans)	ug/g	0.05	0.083		<0.042	<0.042		
Ethylbenzene	ug/g	2	15	<0.018	<0.018	<0.018	<0.018	<0.018
n-Hexane	ug/g	2.8	34		<0.050	<0.050		
Methyl Ethyl Ketone	ug/g	16	44		<0.50	<0.50		
Methyl Isobutyl Ketone	ug/g	1.7	4.3		<0.50	<0.50		
MTBE	ug/g	0.75	1.4		<0.050	<0.050		
Styrene	ug/g	0.7	2.2		<0.050	<0.050		

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Volatile Organic Compounds - SOIL

			Lab ID	L2650739-3	L2650739-4	L2650739-5	L2650739-10	L2650739-11
			Sample Date	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21
			Sample ID	21-1-4	21-2-1	21-2-1D	21-3-5	21-3-5D
		Guide Limits						
Analyte	Unit	#1	#2					
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05		<0.050	<0.050		
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05		<0.050	<0.050		
Tetrachloroethylene	ug/g	0.28	2.3		<0.050	<0.050		
Toluene	ug/g	2.3	6	<0.080	<0.080	<0.080	<0.080	<0.080
1,1,1-Trichloroethane	ug/g	0.38	3.4		<0.050	<0.050		
1,1,2-Trichloroethane	ug/g	0.05	0.05		<0.050	<0.050		
Trichloroethylene	ug/g	0.061	0.52		<0.010	<0.010		
Trichlorofluoromethane	ug/g	4	5.8		<0.050	<0.050		
Vinyl chloride	ug/g	0.02	0.022		<0.020	<0.020		
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	-	-	<0.030	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	3.1	25	<0.050	<0.050	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	96.9	87.5	90.2	98.8	101.7
Surrogate: 1,4-Difluorobenzene	%	-	-	107.0	91.3	93.0	108.1	110.3

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Hydrocarbons - SOIL

				Lab ID	L2650739-3	L2650739-4	L2650739-5	L2650739-10	L2650739-11
				Sample Date	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21	12-OCT-21
				Sample ID	21-1-4	21-2-1	21-2-1D	21-3-5	21-3-5D
		Guide Limits							
Analyte	Unit	#1	#2						
F1 (C6-C10)	ug/g	55	65	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	ug/g	55	65	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	98	150	<10	<10	<10	<10	<10
F3 (C16-C34)	ug/g	300	1300	<50	<50	<50	69	<50
F4 (C34-C50)	ug/g	2800	5600	92	<50	<50	215	<50
F4G-SG (GHH-Silica)	ug/g	2800	5600				630	
Total Hydrocarbons (C6-C50)	ug/g	-	-	92	<72	<72	284	<72
Chrom. to baseline at nC50		-	-	YES	YES	YES	NO	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	87.5	87.6	84.5	85.2	95.8
Surrogate: 3,4-Dichlorotoluene	%	-	-	98.9	88.2	92.4	91.4	100.4

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
BTX-511-HS-WT	Soil	BTEX-O.Reg 153/04 (July 2011)	SW846 8260

BTX is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

GRAIN SIZE-HYD-SK	Soil	Grain Size by Hydrometer	ASTM D6913/D7928

Particle size curve is generated from dry sieving (particles > 2 mm), wet sieving (particles 2 mm-75 um) and hydrometer readings (particles < 75 um)

ASTM D422-63 has been withdrawn, the ASTM D6913/D7928 standard serves as the successor method.

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020B (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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

MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

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

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

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

Chain of Custody Numbers:

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

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

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

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

Quality Control Report

Workorder: L2650739 Report Date: 22-OCT-21

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT	**Soil**							
Batch R5621919								
WG3638846-4 DUP		**WG3638846-3**						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	18-OCT-21
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	18-OCT-21
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-OCT-21
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	18-OCT-21
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	18-OCT-21
WG3638846-2 LCS								
Benzene			97.0		%		70-130	18-OCT-21
Ethylbenzene			91.1		%		70-130	18-OCT-21
m+p-Xylenes			85.8		%		70-130	18-OCT-21
o-Xylene			90.4		%		70-130	18-OCT-21
Toluene			95.1		%		70-130	18-OCT-21
WG3638846-1 MB								
Benzene			<0.0068		ug/g		0.0068	18-OCT-21
Ethylbenzene			<0.018		ug/g		0.018	18-OCT-21
m+p-Xylenes			<0.030		ug/g		0.03	18-OCT-21
o-Xylene			<0.020		ug/g		0.02	18-OCT-21
Toluene			<0.080		ug/g		0.08	18-OCT-21
Surrogate: 1,4-Difluorobenzene			114.6		%		50-140	18-OCT-21
Surrogate: 4-Bromofluorobenzene			103.5		%		50-140	18-OCT-21
WG3638846-5 MS		**WG3638846-3**						
Benzene			113.5		%		60-140	18-OCT-21
Ethylbenzene			109.5		%		60-140	18-OCT-21
m+p-Xylenes			103.6		%		60-140	18-OCT-21
o-Xylene			107.9		%		60-140	18-OCT-21
Toluene			110.7		%		60-140	18-OCT-21
F1-HS-511-WT	**Soil**							
Batch R5621919								
WG3638846-4 DUP		**WG3638846-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	18-OCT-21
WG3638846-2 LCS								
F1 (C6-C10)			74.6	LCS-L	%		80-120	18-OCT-21
WG3638846-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	18-OCT-21
Surrogate: 3,4-Dichlorotoluene			112.3		%		60-140	18-OCT-21
WG3638846-5 MS		**WG3638846-3**						

Quality Control Report

Workorder: L2650739 Report Date: 22-OCT-21

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R5621919								
WG3638846-5 MS		**WG3638846-3**						
F1 (C6-C10)			98.3		%		60-140	18-OCT-21
Batch R5623636								
WG3638895-4 DUP		**WG3638895-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	18-OCT-21
WG3638895-2 LCS								
F1 (C6-C10)			107.3		%		80-120	18-OCT-21
WG3638895-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	18-OCT-21
Surrogate: 3,4-Dichlorotoluene			104.6		%		60-140	18-OCT-21
WG3638895-5 MS		**WG3638895-3**						
F1 (C6-C10)			111.9		%		60-140	18-OCT-21
F2-F4-511-WT	**Soil**							
Batch R5624497								
WG3639482-3 DUP		**WG3639482-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	19-OCT-21
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	19-OCT-21
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	19-OCT-21
WG3639482-2 LCS								
F2 (C10-C16)			96.2		%		80-120	19-OCT-21
F3 (C16-C34)			95.0		%		80-120	19-OCT-21
F4 (C34-C50)			103.3		%		80-120	19-OCT-21
WG3639482-1 MB								
F2 (C10-C16)			<10		ug/g		10	19-OCT-21
F3 (C16-C34)			<50		ug/g		50	19-OCT-21
F4 (C34-C50)			<50		ug/g		50	19-OCT-21
Surrogate: 2-Bromobenzotrifluoride			93.7		%		60-140	19-OCT-21
WG3639482-4 MS		**WG3639482-5**						
F2 (C10-C16)			95.4		%		60-140	19-OCT-21
F3 (C16-C34)			97.0		%		60-140	19-OCT-21
F4 (C34-C50)			102.3		%		60-140	19-OCT-21
Batch R5625050								
WG3639485-3 DUP		**WG3639485-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	20-OCT-21
F3 (C16-C34)		90	130	J	ug/g	39	100	20-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R5625050								
WG3639485-3 DUP		**WG3639485-5**						
F4 (C34-C50)		<50	65	RPD-NA	ug/g	N/A	30	20-OCT-21
WG3639485-2 LCS								
F2 (C10-C16)			92.7		%		80-120	20-OCT-21
F3 (C16-C34)			95.0		%		80-120	20-OCT-21
F4 (C34-C50)			100.0		%		80-120	20-OCT-21
WG3639485-1 MB								
F2 (C10-C16)			<10		ug/g		10	20-OCT-21
F3 (C16-C34)			<50		ug/g		50	20-OCT-21
F4 (C34-C50)			<50		ug/g		50	20-OCT-21
Surrogate: 2-Bromobenzotrifluoride			85.5		%		60-140	20-OCT-21
WG3639485-4 MS		**WG3639485-5**						
F2 (C10-C16)			94.1		%		60-140	20-OCT-21
F3 (C16-C34)			92.2		%		60-140	20-OCT-21
F4 (C34-C50)			101.4		%		60-140	20-OCT-21
F4G-ADD-511-WT	**Soil**							
Batch R5625719								
WG3642284-2 LCS								
F4G-SG (GHH-Silica)			84.5		%		60-140	18-OCT-21
WG3642284-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	18-OCT-21
GRAIN SIZE-HYD-SK	**Soil**							
Batch R5627096								
WG3641656-1 DUP		**L2649999-16**						
Gravel (4.75mm - 3in.)		<1.0	<1.0	RPD-NA	%	N/A	25	22-OCT-21
Coarse Sand (2.0mm - 4.75mm)		<1.0	<1.0	RPD-NA	%	N/A	5	22-OCT-21
Medium Sand (0.425mm - 2.0mm)		2.0	1.8	J	%	0.2	5	22-OCT-21
Fine Sand (0.075mm - 0.425mm)		5.4	5.2	J	%	0.2	5	22-OCT-21
Silt (0.005mm - 0.075mm)		62.8	61.3	J	%	1.6	5	22-OCT-21
Clay (<0.005mm)		29.4	31.3	J	%	1.9	5	22-OCT-21
Silt (0.002mm - 0.075mm)		75.5	74.4	J	%	1.2	5	22-OCT-21
Clay (<0.002mm)		16.7	18.2	J	%	1.5	5	22-OCT-21
WG3641656-2 IRM		**2020-PSA_SOIL**						
Medium Sand (0.425mm - 2.0mm)			7.1		%		2-12	22-OCT-21
Fine Sand (0.075mm - 0.425mm)			36.8		%		29.6-39.6	22-OCT-21
Silt (0.005mm - 0.075mm)			31.6		%		27.4-37.4	22-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
GRAIN SIZE-HYD-SK	**Soil**							
Batch R5627096								
WG3641656-2 IRM		**2020-PSA_SOIL**						
Clay (<0.005mm)			24.6		%		21-31	22-OCT-21
Silt (0.002mm - 0.075mm)			36.9		%		32.3-42.3	22-OCT-21
Clay (<0.002mm)			19.2		%		16.1-26.1	22-OCT-21
MET-200.2-CCMS-WT	**Soil**							
Batch R5624576								
WG3640293-2 CRM		**WT-SS-2**						
Antimony (Sb)			98.6		%		70-130	19-OCT-21
Arsenic (As)			105.3		%		70-130	19-OCT-21
Barium (Ba)			108.7		%		70-130	19-OCT-21
Beryllium (Be)			107.3		%		70-130	19-OCT-21
Boron (B)			8.4		mg/kg		3.5-13.5	19-OCT-21
Cadmium (Cd)			100.6		%		70-130	19-OCT-21
Chromium (Cr)			100.9		%		70-130	19-OCT-21
Cobalt (Co)			103.4		%		70-130	19-OCT-21
Copper (Cu)			104.3		%		70-130	19-OCT-21
Lead (Pb)			98.6		%		70-130	19-OCT-21
Molybdenum (Mo)			105.6		%		70-130	19-OCT-21
Nickel (Ni)			104.1		%		70-130	19-OCT-21
Selenium (Se)			0.14		mg/kg		0-0.34	19-OCT-21
Silver (Ag)			112.4		%		70-130	19-OCT-21
Thallium (Tl)			0.069		mg/kg		0.029-0.129	19-OCT-21
Uranium (U)			102.2		%		70-130	19-OCT-21
Vanadium (V)			101.4		%		70-130	19-OCT-21
Zinc (Zn)			98.5		%		70-130	19-OCT-21
WG3640293-6 DUP		**WG3640293-5**						
Antimony (Sb)		0.18	0.18		ug/g	3.2	30	19-OCT-21
Arsenic (As)		5.44	5.43		ug/g	0.1	30	19-OCT-21
Barium (Ba)		87.3	90.9		ug/g	4.0	40	19-OCT-21
Beryllium (Be)		0.74	0.80		ug/g	7.1	30	19-OCT-21
Boron (B)		10.3	11.5		ug/g	11	30	19-OCT-21
Cadmium (Cd)		0.180	0.134		ug/g	29	30	19-OCT-21
Chromium (Cr)		22.1	23.1		ug/g	4.4	30	19-OCT-21
Cobalt (Co)		12.4	12.7		ug/g	2.5	30	19-OCT-21
Copper (Cu)		26.8	27.1		ug/g			19-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5624576								
WG3640293-6 DUP		**WG3640293-5**						
Copper (Cu)		26.8	27.1		ug/g	1.3	30	19-OCT-21
Lead (Pb)		11.3	11.6		ug/g	2.7	40	19-OCT-21
Molybdenum (Mo)		0.40	0.45		ug/g	12	40	19-OCT-21
Nickel (Ni)		26.7	27.1		ug/g	1.7	30	19-OCT-21
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	19-OCT-21
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	19-OCT-21
Thallium (Tl)		0.147	0.156		ug/g	5.8	30	19-OCT-21
Uranium (U)		0.528	0.566		ug/g	6.8	30	19-OCT-21
Vanadium (V)		32.4	33.4		ug/g	3.1	30	19-OCT-21
Zinc (Zn)		83.6	62.7		ug/g	29	30	19-OCT-21
WG3640293-4 LCS								
Antimony (Sb)			105.3		%		80-120	19-OCT-21
Arsenic (As)			109.7		%		80-120	19-OCT-21
Barium (Ba)			110.3		%		80-120	19-OCT-21
Beryllium (Be)			99.5		%		80-120	19-OCT-21
Boron (B)			95.5		%		80-120	19-OCT-21
Cadmium (Cd)			97.8		%		80-120	19-OCT-21
Chromium (Cr)			105.7		%		80-120	19-OCT-21
Cobalt (Co)			105.4		%		80-120	19-OCT-21
Copper (Cu)			103.2		%		80-120	19-OCT-21
Lead (Pb)			97.9		%		80-120	19-OCT-21
Molybdenum (Mo)			101.7		%		80-120	19-OCT-21
Nickel (Ni)			103.1		%		80-120	19-OCT-21
Selenium (Se)			105.7		%		80-120	19-OCT-21
Silver (Ag)			93.7		%		80-120	19-OCT-21
Thallium (Tl)			100.4		%		80-120	19-OCT-21
Uranium (U)			97.8		%		80-120	19-OCT-21
Vanadium (V)			108.5		%		80-120	19-OCT-21
Zinc (Zn)			98.7		%		80-120	19-OCT-21
WG3640293-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	19-OCT-21
Arsenic (As)			<0.10		mg/kg		0.1	19-OCT-21
Barium (Ba)			<0.50		mg/kg		0.5	19-OCT-21
Beryllium (Be)			<0.10		mg/kg		0.1	19-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5624576								
WG3640293-1 MB								
Boron (B)			<5.0		mg/kg		5	19-OCT-21
Cadmium (Cd)			<0.020		mg/kg		0.02	19-OCT-21
Chromium (Cr)			<0.50		mg/kg		0.5	19-OCT-21
Cobalt (Co)			<0.10		mg/kg		0.1	19-OCT-21
Copper (Cu)			<0.50		mg/kg		0.5	19-OCT-21
Lead (Pb)			<0.50		mg/kg		0.5	19-OCT-21
Molybdenum (Mo)			<0.10		mg/kg		0.1	19-OCT-21
Nickel (Ni)			<0.50		mg/kg		0.5	19-OCT-21
Selenium (Se)			<0.20		mg/kg		0.2	19-OCT-21
Silver (Ag)			<0.10		mg/kg		0.1	19-OCT-21
Thallium (Tl)			<0.050		mg/kg		0.05	19-OCT-21
Uranium (U)			<0.050		mg/kg		0.05	19-OCT-21
Vanadium (V)			<0.20		mg/kg		0.2	19-OCT-21
Zinc (Zn)			<2.0		mg/kg		2	19-OCT-21
MOISTURE-WT	**Soil**							
Batch R5620657								
WG3638303-6 DUP		**L2650104-4**						
% Moisture		11.8	12.3		%	4.2	20	16-OCT-21
WG3638303-5 LCS								
% Moisture			101.0		%		90-110	16-OCT-21
WG3638303-4 MB								
% Moisture			<0.25		%		0.25	16-OCT-21
PH-WT	**Soil**							
Batch R5623060								
WG3639478-1 DUP		**L2650160-1**						
pH		7.88	7.96	J	pH units	0.08	0.3	18-OCT-21
WG3639782-1 LCS								
pH			6.99		pH units		6.9-7.1	18-OCT-21
VOC-511-HS-WT	**Soil**							
Batch R5623636								
WG3638895-4 DUP		**WG3638895-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5623636								
WG3638895-4 DUP		**WG3638895-3**						
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-OCT-21
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	18-OCT-21
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-OCT-21
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	18-OCT-21
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-OCT-21
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-OCT-21
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	18-OCT-21
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	18-OCT-21
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	18-OCT-21
trans-1,2-Dichloroethylene		<0.050	<0.050		ug/g			18-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5623636								
WG3638895-4 DUP		**WG3638895-3**						
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	18-OCT-21
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	18-OCT-21
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	18-OCT-21
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	18-OCT-21
WG3638895-2 LCS								
1,1,1,2-Tetrachloroethane			109.6		%		60-130	18-OCT-21
1,1,2,2-Tetrachloroethane			110.6		%		60-130	18-OCT-21
1,1,1-Trichloroethane			108.6		%		60-130	18-OCT-21
1,1,2-Trichloroethane			114.2		%		60-130	18-OCT-21
1,1-Dichloroethane			105.3		%		60-130	18-OCT-21
1,1-Dichloroethylene			107.0		%		60-130	18-OCT-21
1,2-Dibromoethane			106.5		%		70-130	18-OCT-21
1,2-Dichlorobenzene			102.9		%		70-130	18-OCT-21
1,2-Dichloroethane			108.1		%		60-130	18-OCT-21
1,2-Dichloropropane			115.1		%		70-130	18-OCT-21
1,3-Dichlorobenzene			102.1		%		70-130	18-OCT-21
1,4-Dichlorobenzene			101.9		%		70-130	18-OCT-21
Acetone			109.6		%		60-140	18-OCT-21
Benzene			107.2		%		70-130	18-OCT-21
Bromodichloromethane			116.6		%		50-140	18-OCT-21
Bromoform			104.8		%		70-130	18-OCT-21
Bromomethane			94.5		%		50-140	18-OCT-21
Carbon tetrachloride			107.9		%		70-130	18-OCT-21
Chlorobenzene			109.1		%		70-130	18-OCT-21
Chloroform			110.1		%		70-130	18-OCT-21
cis-1,2-Dichloroethylene			106.7		%		70-130	18-OCT-21
cis-1,3-Dichloropropene			107.6		%		70-130	18-OCT-21
Dibromochloromethane			108.1		%		60-130	18-OCT-21
Dichlorodifluoromethane			61.7		%		50-140	18-OCT-21
Ethylbenzene			107.0		%		70-130	18-OCT-21
n-Hexane			97.8		%		70-130	18-OCT-21
Methylene Chloride			101.6		%		70-130	18-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5623636								
WG3638895-2 LCS								
MTBE			94.4		%		70-130	18-OCT-21
m+p-Xylenes			110.1		%		70-130	18-OCT-21
Methyl Ethyl Ketone			98.1		%		60-140	18-OCT-21
Methyl Isobutyl Ketone			95.0		%		60-140	18-OCT-21
o-Xylene			105.1		%		70-130	18-OCT-21
Styrene			104.4		%		70-130	18-OCT-21
Tetrachloroethylene			107.1		%		60-130	18-OCT-21
Toluene			108.3		%		70-130	18-OCT-21
trans-1,2-Dichloroethylene			104.2		%		60-130	18-OCT-21
trans-1,3-Dichloropropene			110.6		%		70-130	18-OCT-21
Trichloroethylene			104.3		%		60-130	18-OCT-21
Trichlorofluoromethane			90.9		%		50-140	18-OCT-21
Vinyl chloride			85.5		%		60-140	18-OCT-21
WG3638895-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	18-OCT-21
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	18-OCT-21
1,1,1-Trichloroethane			<0.050		ug/g		0.05	18-OCT-21
1,1,2-Trichloroethane			<0.050		ug/g		0.05	18-OCT-21
1,1-Dichloroethane			<0.050		ug/g		0.05	18-OCT-21
1,1-Dichloroethylene			<0.050		ug/g		0.05	18-OCT-21
1,2-Dibromoethane			<0.050		ug/g		0.05	18-OCT-21
1,2-Dichlorobenzene			<0.050		ug/g		0.05	18-OCT-21
1,2-Dichloroethane			<0.050		ug/g		0.05	18-OCT-21
1,2-Dichloropropane			<0.050		ug/g		0.05	18-OCT-21
1,3-Dichlorobenzene			<0.050		ug/g		0.05	18-OCT-21
1,4-Dichlorobenzene			<0.050		ug/g		0.05	18-OCT-21
Acetone			<0.50		ug/g		0.5	18-OCT-21
Benzene			<0.0068		ug/g		0.0068	18-OCT-21
Bromodichloromethane			<0.050		ug/g		0.05	18-OCT-21
Bromoform			<0.050		ug/g		0.05	18-OCT-21
Bromomethane			<0.050		ug/g		0.05	18-OCT-21
Carbon tetrachloride			<0.050		ug/g		0.05	18-OCT-21
Chlorobenzene			<0.050		ug/g		0.05	18-OCT-21
Chloroform			<0.050		ug/g		0.05	18-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5623636								
WG3638895-1 MB								
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	18-OCT-21
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	18-OCT-21
Dibromochloromethane			<0.050		ug/g		0.05	18-OCT-21
Dichlorodifluoromethane			<0.050		ug/g		0.05	18-OCT-21
Ethylbenzene			<0.018		ug/g		0.018	18-OCT-21
n-Hexane			<0.050		ug/g		0.05	18-OCT-21
Methylene Chloride			<0.050		ug/g		0.05	18-OCT-21
MTBE			<0.050		ug/g		0.05	18-OCT-21
m+p-Xylenes			<0.030		ug/g		0.03	18-OCT-21
Methyl Ethyl Ketone			<0.50		ug/g		0.5	18-OCT-21
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	18-OCT-21
o-Xylene			<0.020		ug/g		0.02	18-OCT-21
Styrene			<0.050		ug/g		0.05	18-OCT-21
Tetrachloroethylene			<0.050		ug/g		0.05	18-OCT-21
Toluene			<0.080		ug/g		0.08	18-OCT-21
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	18-OCT-21
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	18-OCT-21
Trichloroethylene			<0.010		ug/g		0.01	18-OCT-21
Trichlorofluoromethane			<0.050		ug/g		0.05	18-OCT-21
Vinyl chloride			<0.020		ug/g		0.02	18-OCT-21
Surrogate: 1,4-Difluorobenzene			115.1		%		50-140	18-OCT-21
Surrogate: 4-Bromofluorobenzene			107.0		%		50-140	18-OCT-21
WG3638895-5 MS		**WG3638895-3**						
1,1,1,2-Tetrachloroethane			114.7		%		50-140	18-OCT-21
1,1,2,2-Tetrachloroethane			120.0		%		50-140	18-OCT-21
1,1,1-Trichloroethane			114.6		%		50-140	18-OCT-21
1,1,2-Trichloroethane			122.4		%		50-140	18-OCT-21
1,1-Dichloroethane			112.3		%		50-140	18-OCT-21
1,1-Dichloroethylene			119.7		%		50-140	18-OCT-21
1,2-Dibromoethane			115.0		%		50-140	18-OCT-21
1,2-Dichlorobenzene			108.5		%		50-140	18-OCT-21
1,2-Dichloroethane			115.2		%		50-140	18-OCT-21
1,2-Dichloropropane			120.5		%		50-140	18-OCT-21
1,3-Dichlorobenzene			105.3		%		50-140	18-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5623636								
WG3638895-5 MS		**WG3638895-3**						
1,4-Dichlorobenzene			106.2		%		50-140	18-OCT-21
Acetone			123.8		%		50-140	18-OCT-21
Benzene			113.0		%		50-140	18-OCT-21
Bromodichloromethane			123.0		%		50-140	18-OCT-21
Bromoform			112.9		%		50-140	18-OCT-21
Bromomethane			112.5		%		50-140	18-OCT-21
Carbon tetrachloride			112.9		%		50-140	18-OCT-21
Chlorobenzene			113.5		%		50-140	18-OCT-21
Chloroform			115.7		%		50-140	18-OCT-21
cis-1,2-Dichloroethylene			98.9		%		50-140	18-OCT-21
cis-1,3-Dichloropropene			110.0		%		50-140	18-OCT-21
Dibromochloromethane			115.2		%		50-140	18-OCT-21
Dichlorodifluoromethane			98.1		%		50-140	18-OCT-21
Ethylbenzene			110.0		%		50-140	18-OCT-21
n-Hexane			112.7		%		50-140	18-OCT-21
Methylene Chloride			110.3		%		50-140	18-OCT-21
MTBE			101.9		%		50-140	18-OCT-21
m+p-Xylenes			112.7		%		50-140	18-OCT-21
Methyl Ethyl Ketone			106.3		%		50-140	18-OCT-21
Methyl Isobutyl Ketone			103.5		%		50-140	18-OCT-21
o-Xylene			108.6		%		50-140	18-OCT-21
Styrene			108.7		%		50-140	18-OCT-21
Tetrachloroethylene			108.7		%		50-140	18-OCT-21
Toluene			113.1		%		50-140	18-OCT-21
trans-1,2-Dichloroethylene			110.3		%		50-140	18-OCT-21
trans-1,3-Dichloropropene			114.8		%		50-140	18-OCT-21
Trichloroethylene			107.3		%		50-140	18-OCT-21
Trichlorofluoromethane			107.2		%		50-140	18-OCT-21
Vinyl chloride			108.4		%		50-140	18-OCT-21

Quality Control Report

Workorder: L2650739 Report Date: 22-OCT-21

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

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

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

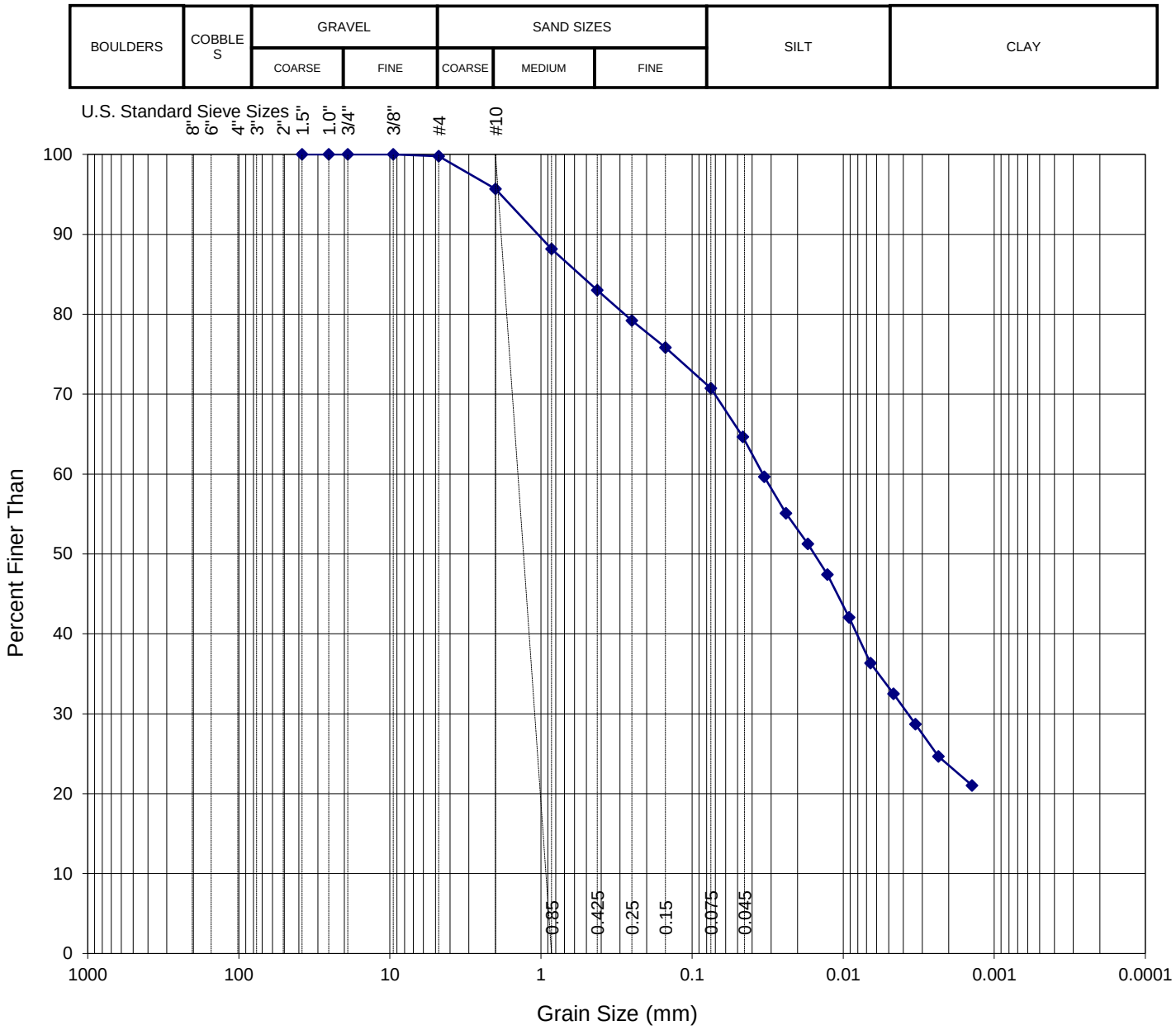
Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Laboratory Group

819-58th Street, Saskatoon,SK

PARTICLE SIZE DISTRIBUTION CURVE

Client Name:	PALMER ENVIRONMENTAL CONSULT
Project Number:	
Client Sample ID	21-2-5
Lab Sample ID	L2650739-6
Date Sample Received	12-Oct-21
Test Completion Date:	20-Oct-21
Analyst:	SIH



METHOD DESCRIPTION

Method Reference: ASTM D 422 - 63 (2002)

Dispersion method: Mechanical

Dispesion period: 1 minute cm/s

Soil classification system used: ASTM D422-63 Classification

DESCRIPTION OF SAND AND GRAVEL PARTICLES

Shape: Angular

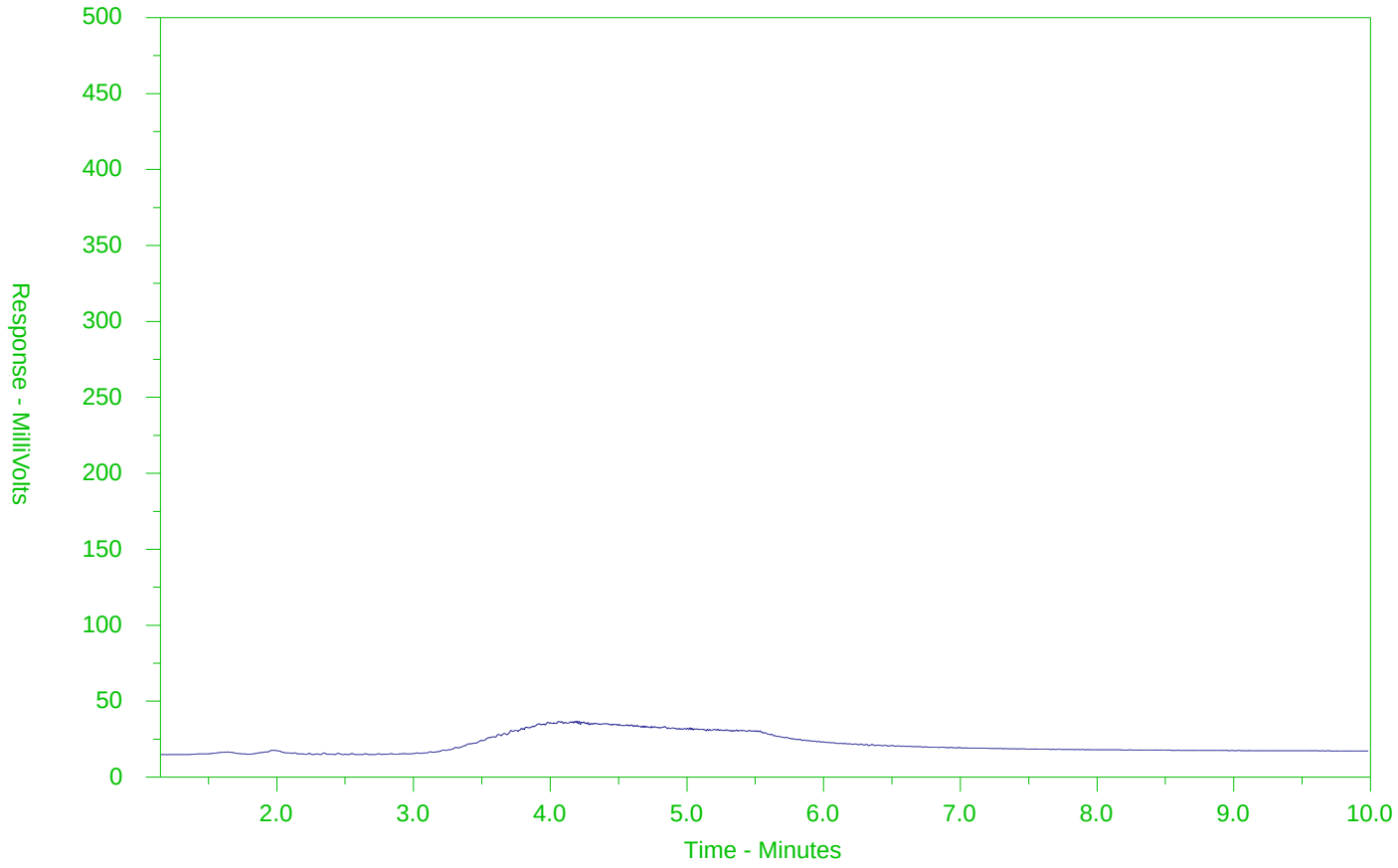
Hardness: Hard

SUMMARY OF RESULTS

GRAIN SIZE	WT %	DIA. RANGE (mm)
% GRAVEL :	<1	> 4.75
% COARSE SAND :	4.08	2.0 - 4.75
% MEDIUM SAND :	12.67	0.425 - 2.0
% FINE SAND :	12.28	0.075 - 0.425
% SILT :	37.41	0.075 - 0.005
% CLAY :	33.32	< 0.005

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2650739-3
Client Sample ID: 21-1-4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

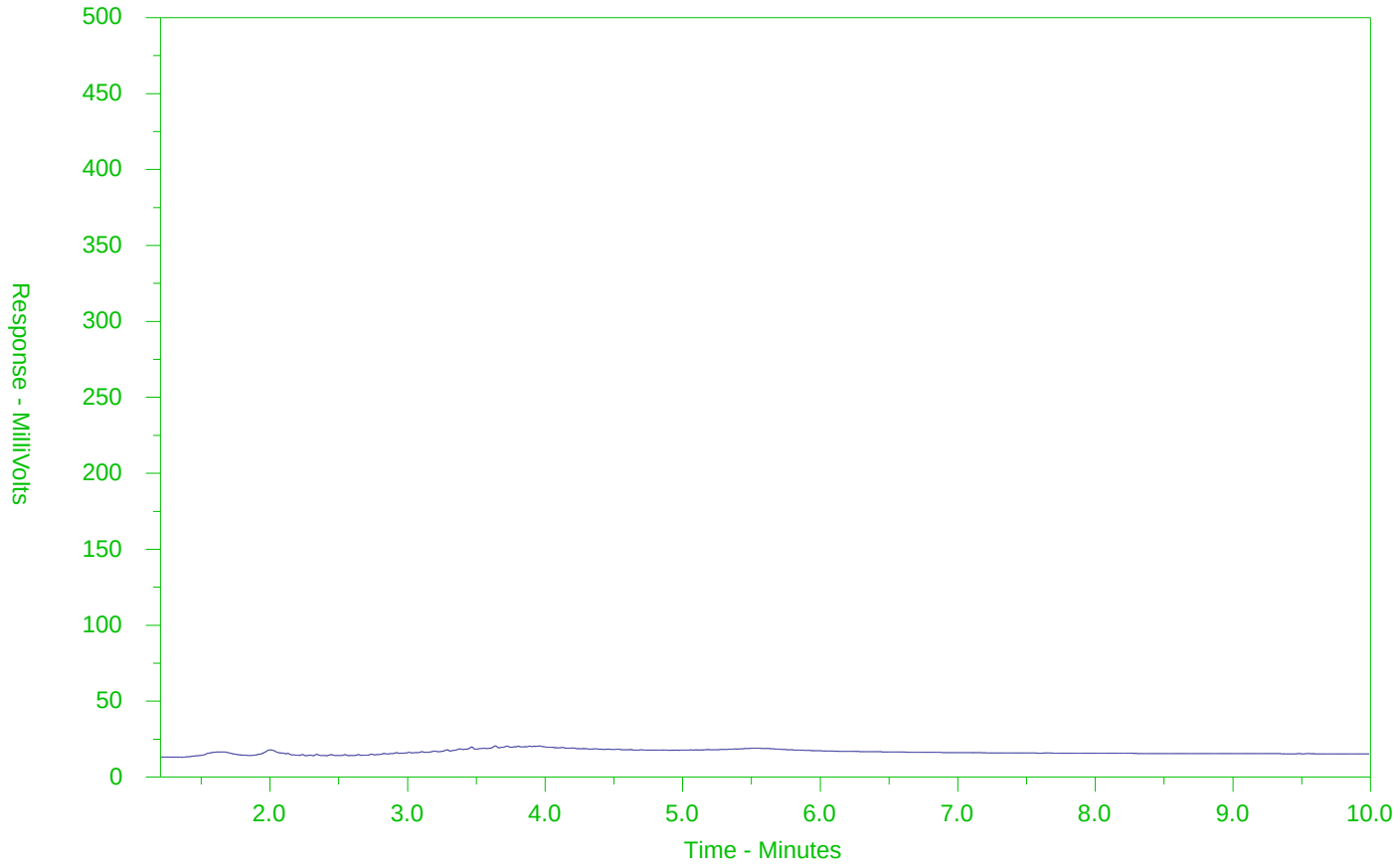
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2650739-4
Client Sample ID: 21-2-1



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

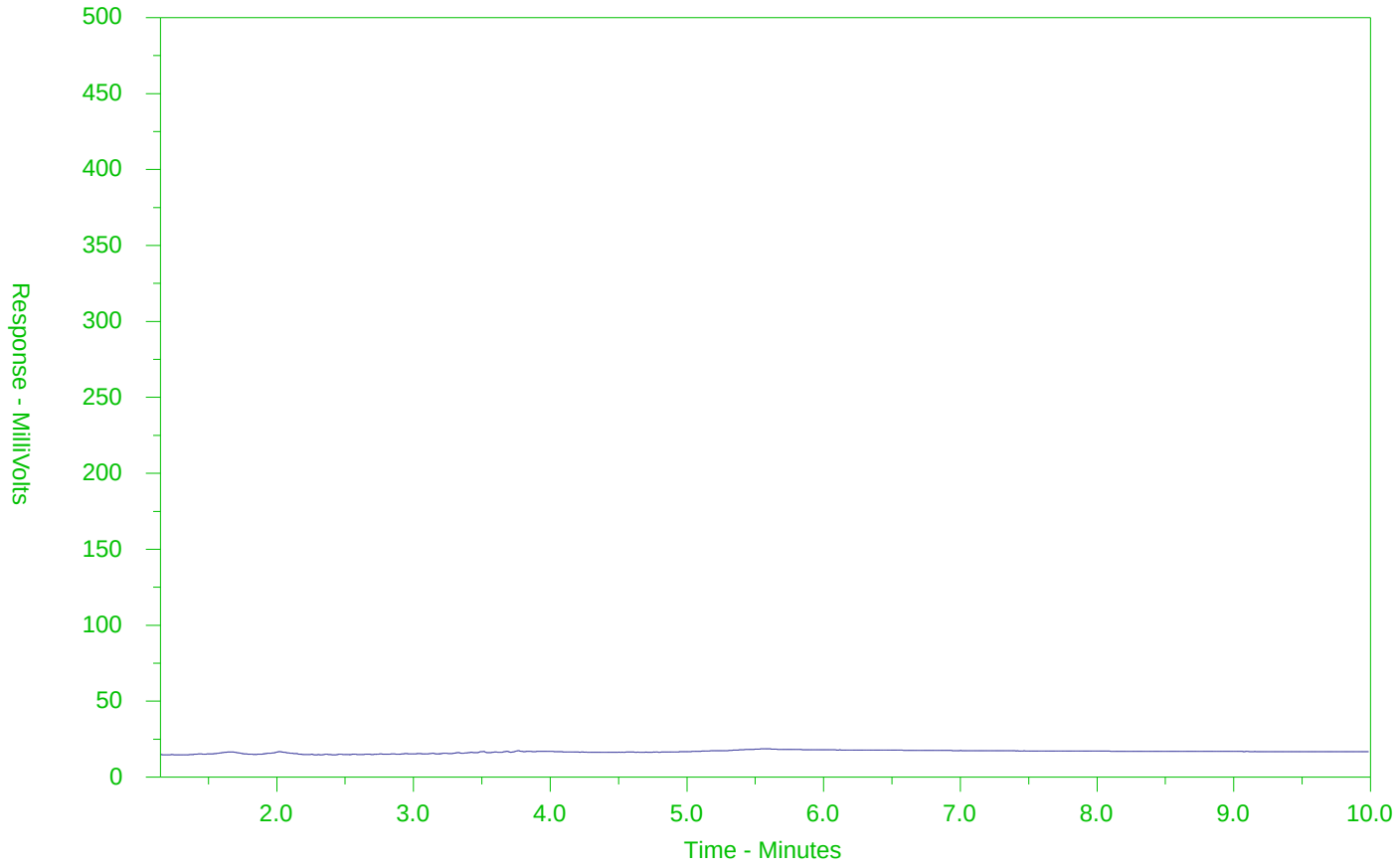
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2650739-5
Client Sample ID: 21-2-1D



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

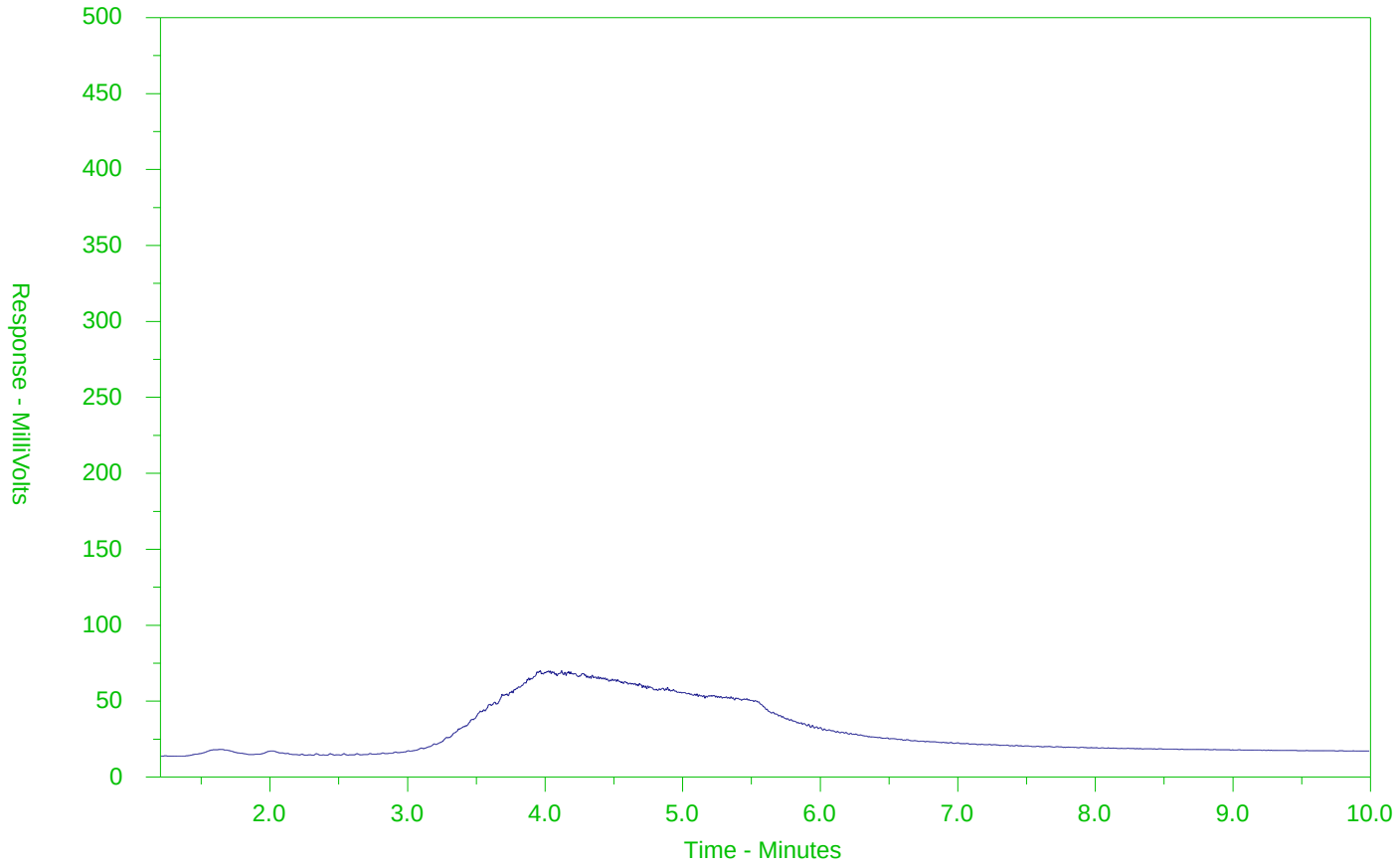
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2650739-10
Client Sample ID: 21-3-5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

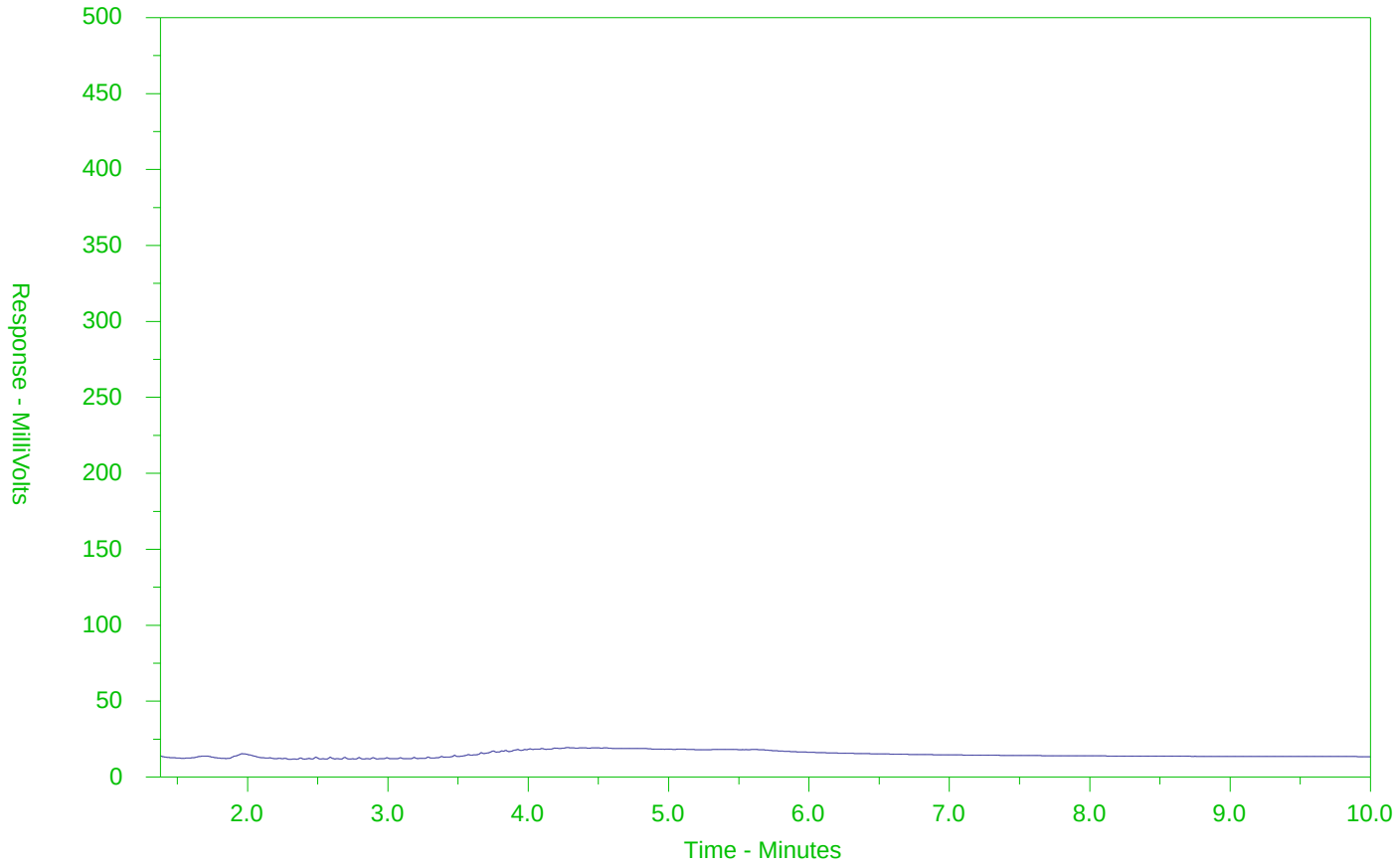
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2650739-11
Client Sample ID: 21-3-5D



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody

www.alsglobal.com

Canada L2650739-COFC

COC Number: 20 -

Page (of (1 1

Report To	Contact and company name below will appear on the final report
Company:	Palmer Environmental Consulting Group Inc.
Contact:	Chloe Stephenson
Phone:	289-921-1336
	Company address below will appear on the final report
Street:	74 Berkeley Street
City/Province:	Toronto, ON
Postal Code:	M5A 2W7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Palmer Environmental Consulting Group Inc.
Contact:	Accounting

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: chloe.stephenson@pecg.ca
Email 2: sarah.sipak@pecg.ca
Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: accounting@pecg.ca
Email 2: sarah.sipak@pecg.ca

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: 19-Oct-21 5pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:	24400/Q78950
Job #:	190204
PO / AFE:	190204
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): L2650739

ALS Contact: J Barkshire Sampler: CS

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Metals	PHC/BTEX	PAH	PHC/VOC	Grain Size	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRE	SUSPECTED HAZARD (see notes)
	21-1-1	12-Oct-21		Soil	1	X							
	21-1-10				1	X							
	21-1-4				4		X	X					
	21-2-1				3				X				
	21-2-10				3				X				
	21-2-5				1					X			
	21-3-1				1			X					
	21-3-10				1			X					
	21-3-2				1	X							
	21-3-5				3		X						
	21-3-50				3		X						

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO
Are samples for human consumption/ use? ☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Table 3 RPI

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☒ ICE PACKS ☐ FROZEN ☒ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☒ NO
Cooler Custody Seals Intact: ☐ YES ☒ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
26.5				17.8			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
CS	12-Oct-21	

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
CKocharak(KG)	12-Oct-21	1730

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	13/10/2021	0320

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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

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

PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
ATTN: Sarah Sipak
74 Berkeley Street
Toronto ON M5V 1E3

Date Received: 13-OCT-21
Report Date: 21-OCT-21 07:32 (MT)
Version: FINAL

Client Phone: 647-795-8153

Certificate of Analysis

Lab Work Order #: L2651507

Project P.O. #: 1901204
Job Reference: 1901204
C of C Numbers:
Legal Site Desc:

Mathy Mahadeva
Account Manager

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

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Guideline						
Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Soil-Res/Park/Inst. Property Use (Coarse)						
(No parameter exceedances)						
Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Soil-Res/Park/Inst. Property Use (Fine)						
(No parameter exceedances)						

ANALYTICAL REPORT

Physical Tests - SOIL

			Lab ID	L2651507-2	L2651507-4	L2651507-6	L2651507-8
			Sample Date	13-OCT-21	13-OCT-21	13-OCT-21	13-OCT-21
			Sample ID	21-4-5	21-5-5	21-6-3	21-7-5
Analyte	Unit	Guide Limits #1	#2				
% Moisture	%	-	-	12.4	9.99	11.5	14.3

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Metals - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID: L2651507-1 / Sample Date: 13-OCT-21 / Sample ID: 21-4-1	Lab ID: L2651507-3 / Sample Date: 13-OCT-21 / Sample ID: 21-5-3	Lab ID: L2651507-5 / Sample Date: 13-OCT-21 / Sample ID: 21-6-2	Lab ID: L2651507-7 / Sample Date: 13-OCT-21 / Sample ID: 21-7-2
Antimony (Sb)	ug/g	7.5	7.5	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	18	5.2	4.7	6.6	5.9
Barium (Ba)	ug/g	390	390	94.7	107	126	123
Beryllium (Be)	ug/g	4	5	0.77	0.55	0.95	0.81
Boron (B)	ug/g	120	120	8.6	10.1	8.4	7.5
Cadmium (Cd)	ug/g	1.2	1.2	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	160	160	22.1	19.4	29.9	26.7
Cobalt (Co)	ug/g	22	22	11.5	10.8	14.2	13.3
Copper (Cu)	ug/g	140	180	25.6	23.8	30.3	30.9
Lead (Pb)	ug/g	120	120	12.5	10.8	18.1	14.5
Molybdenum (Mo)	ug/g	6.9	6.9	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	100	130	25.8	22.9	29.5	28.6
Selenium (Se)	ug/g	2.4	2.4	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	20	25	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	1	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	23	23	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	86	32.3	27.4	39.1	36.8
Zinc (Zn)	ug/g	340	340	65.2	52.3	90.2	72.4

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Volatile Organic Compounds - SOIL

			Lab ID	L2651507-2	L2651507-4	L2651507-6	L2651507-8
			Sample Date	13-OCT-21	13-OCT-21	13-OCT-21	13-OCT-21
			Sample ID	21-4-5	21-5-5	21-6-3	21-7-5
Analyte	Unit	Guide Limits #1	#2				
Benzene	ug/g	0.21	0.17	<0.0068	<0.0068	<0.0068	<0.0068
Ethylbenzene	ug/g	2	15	<0.018	<0.018	<0.018	<0.018
Toluene	ug/g	2.3	6	<0.080	<0.080	<0.080	<0.080
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	-	-	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	3.1	25	<0.050	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	96.2	97.8	100.7	98.2
Surrogate: 1,4-Difluorobenzene	%	-	-	101.8	103.2	103.2	102.5

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Hydrocarbons - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID	
				L2651507-2	L2651507-4	L2651507-6	L2651507-8
				13-OCT-21	13-OCT-21	13-OCT-21	13-OCT-21
				21-4-5	21-5-5	21-6-3	21-7-5
F1 (C6-C10)	ug/g	55	65	<5.0	<5.0	<5.0	<5.0
F1-BTEX	ug/g	55	65	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	98	150	<10	<10	<10	<10
F3 (C16-C34)	ug/g	300	1300	<50	<50	<50	62
F4 (C34-C50)	ug/g	2800	5600	56	<50	<50	160
F4G-SG (GHH-Silica)	ug/g	2800	5600				350
Total Hydrocarbons (C6-C50)	ug/g	-	-	<72	<72	<72	221
Chrom. to baseline at nC50		-	-	YES	YES	YES	NO
Surrogate: 2-Bromobenzotrifluoride	%	-	-	95.7	89.9	89.9	93.8
Surrogate: 3,4-Dichlorotoluene	%	-	-	76.4	87.9	79.2	73.3

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
BTX-511-HS-WT	Soil	BTEX-O.Reg 153/04 (July 2011)	SW846 8260

BTX is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020B (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

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

MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

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

Chain of Custody Numbers:

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

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

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

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

Quality Control Report

Workorder: L2651507 Report Date: 21-OCT-21

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT	**Soil**							
Batch R5624550								
WG3639245-4 DUP		**WG3639245-3**						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	20-OCT-21
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	20-OCT-21
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-OCT-21
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-21
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	20-OCT-21
WG3639245-2 LCS								
Benzene			107.1		%		70-130	19-OCT-21
Ethylbenzene			92.4		%		70-130	19-OCT-21
m+p-Xylenes			94.5		%		70-130	19-OCT-21
o-Xylene			94.5		%		70-130	19-OCT-21
Toluene			100.2		%		70-130	19-OCT-21
WG3639245-1 MB								
Benzene			<0.0068		ug/g		0.0068	19-OCT-21
Ethylbenzene			<0.018		ug/g		0.018	19-OCT-21
m+p-Xylenes			<0.030		ug/g		0.03	19-OCT-21
o-Xylene			<0.020		ug/g		0.02	19-OCT-21
Toluene			<0.080		ug/g		0.08	19-OCT-21
Surrogate: 1,4-Difluorobenzene			107.3		%		50-140	19-OCT-21
Surrogate: 4-Bromofluorobenzene			103.8		%		50-140	19-OCT-21
WG3639245-5 MS		**WG3639245-3**						
Benzene			110.1		%		60-140	20-OCT-21
Ethylbenzene			98.3		%		60-140	20-OCT-21
m+p-Xylenes			98.6		%		60-140	20-OCT-21
o-Xylene			100.0		%		60-140	20-OCT-21
Toluene			104.8		%		60-140	20-OCT-21
F1-HS-511-WT	**Soil**							
Batch R5624550								
WG3639245-4 DUP		**WG3639245-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	20-OCT-21
WG3639245-2 LCS								
F1 (C6-C10)			93.4		%		80-120	19-OCT-21
WG3639245-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	19-OCT-21
Surrogate: 3,4-Dichlorotoluene			86.5		%		60-140	19-OCT-21
WG3639245-5 MS		**WG3639245-3**						

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R5624550								
WG3639245-5 MS		**WG3639245-3**						
F1 (C6-C10)			96.1		%		60-140	20-OCT-21
F2-F4-511-WT	**Soil**							
Batch R5625037								
WG3639945-3 DUP		**WG3639945-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	20-OCT-21
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	20-OCT-21
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	20-OCT-21
WG3639945-2 LCS								
F2 (C10-C16)			92.6		%		80-120	20-OCT-21
F3 (C16-C34)			94.9		%		80-120	20-OCT-21
F4 (C34-C50)			100.7		%		80-120	20-OCT-21
WG3639945-1 MB								
F2 (C10-C16)			<10		ug/g		10	20-OCT-21
F3 (C16-C34)			<50		ug/g		50	20-OCT-21
F4 (C34-C50)			<50		ug/g		50	20-OCT-21
Surrogate: 2-Bromobenzotrifluoride			96.4		%		60-140	20-OCT-21
WG3639945-4 MS		**WG3639945-5**						
F2 (C10-C16)			92.7		%		60-140	20-OCT-21
F3 (C16-C34)			96.2		%		60-140	20-OCT-21
F4 (C34-C50)			105.0		%		60-140	20-OCT-21
F4G-ADD-511-WT	**Soil**							
Batch R5625718								
WG3642282-2 LCS								
F4G-SG (GHH-Silica)			78.6		%		60-140	19-OCT-21
WG3642282-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	19-OCT-21
MET-200.2-CCMS-WT	**Soil**							
Batch R5625374								
WG3641234-2 CRM		**WT-SS-2**						
Antimony (Sb)			90.9		%		70-130	20-OCT-21
Arsenic (As)			102.8		%		70-130	20-OCT-21
Barium (Ba)			102.9		%		70-130	20-OCT-21
Beryllium (Be)			93.4		%		70-130	20-OCT-21
Boron (B)			7.9		mg/kg		3.5-13.5	20-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5625374								
WG3641234-2 CRM		**WT-SS-2**						
Cadmium (Cd)			94.0		%		70-130	20-OCT-21
Chromium (Cr)			95.9		%		70-130	20-OCT-21
Cobalt (Co)			98.5		%		70-130	20-OCT-21
Copper (Cu)			101.2		%		70-130	20-OCT-21
Lead (Pb)			101.7		%		70-130	20-OCT-21
Molybdenum (Mo)			97.0		%		70-130	20-OCT-21
Nickel (Ni)			99.8		%		70-130	20-OCT-21
Selenium (Se)			0.11		mg/kg		0-0.34	20-OCT-21
Silver (Ag)			127.9		%		70-130	20-OCT-21
Thallium (Tl)			0.069		mg/kg		0.029-0.129	20-OCT-21
Uranium (U)			99.1		%		70-130	20-OCT-21
Vanadium (V)			99.1		%		70-130	20-OCT-21
Zinc (Zn)			94.1		%		70-130	20-OCT-21
WG3641234-7 DUP		**WG3641234-6**						
Antimony (Sb)		0.79	1.18	DUP-H	ug/g	40	30	20-OCT-21
Arsenic (As)		5.03	7.35	DUP-H	ug/g	37	30	20-OCT-21
Barium (Ba)		302	328		ug/g	8.5	40	20-OCT-21
Beryllium (Be)		0.39	0.45		ug/g	13	30	20-OCT-21
Boron (B)		8.2	8.8		ug/g	6.3	30	20-OCT-21
Cadmium (Cd)		1.94	1.98		ug/g	1.9	30	20-OCT-21
Chromium (Cr)		8940	9920		ug/g	10	30	20-OCT-21
Cobalt (Co)		7.24	8.14		ug/g	12	30	20-OCT-21
Copper (Cu)		69.2	76.6		ug/g	10	30	20-OCT-21
Lead (Pb)		504	556		ug/g	9.8	40	20-OCT-21
Molybdenum (Mo)		0.51	0.70		ug/g	31	40	20-OCT-21
Nickel (Ni)		17.2	18.4		ug/g	7.1	30	20-OCT-21
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	20-OCT-21
Silver (Ag)		0.79	0.93		ug/g	16	40	20-OCT-21
Thallium (Tl)		0.235	0.279		ug/g	17	30	20-OCT-21
Uranium (U)		0.450	0.499		ug/g	10	30	20-OCT-21
Vanadium (V)		25.0	26.8		ug/g	6.7	30	20-OCT-21
Zinc (Zn)		349	386		ug/g	10	30	20-OCT-21
WG3641234-4 LCS								

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5625374								
WG3641234-4 LCS								
Antimony (Sb)			105.1		%		80-120	20-OCT-21
Arsenic (As)			102.2		%		80-120	20-OCT-21
Barium (Ba)			99.0		%		80-120	20-OCT-21
Beryllium (Be)			94.6		%		80-120	20-OCT-21
Boron (B)			92.5		%		80-120	20-OCT-21
Cadmium (Cd)			96.7		%		80-120	20-OCT-21
Chromium (Cr)			99.2		%		80-120	20-OCT-21
Cobalt (Co)			100.5		%		80-120	20-OCT-21
Copper (Cu)			98.3		%		80-120	20-OCT-21
Lead (Pb)			99.0		%		80-120	20-OCT-21
Molybdenum (Mo)			101.2		%		80-120	20-OCT-21
Nickel (Ni)			98.0		%		80-120	20-OCT-21
Selenium (Se)			100.7		%		80-120	20-OCT-21
Silver (Ag)			92.0		%		80-120	20-OCT-21
Thallium (Tl)			98.9		%		80-120	20-OCT-21
Uranium (U)			99.7		%		80-120	20-OCT-21
Vanadium (V)			102.9		%		80-120	20-OCT-21
Zinc (Zn)			95.7		%		80-120	20-OCT-21
WG3641234-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	20-OCT-21
Arsenic (As)			<0.10		mg/kg		0.1	20-OCT-21
Barium (Ba)			<0.50		mg/kg		0.5	20-OCT-21
Beryllium (Be)			<0.10		mg/kg		0.1	20-OCT-21
Boron (B)			<5.0		mg/kg		5	20-OCT-21
Cadmium (Cd)			<0.020		mg/kg		0.02	20-OCT-21
Chromium (Cr)			<0.50		mg/kg		0.5	20-OCT-21
Cobalt (Co)			<0.10		mg/kg		0.1	20-OCT-21
Copper (Cu)			<0.50		mg/kg		0.5	20-OCT-21
Lead (Pb)			<0.50		mg/kg		0.5	20-OCT-21
Molybdenum (Mo)			<0.10		mg/kg		0.1	20-OCT-21
Nickel (Ni)			<0.50		mg/kg		0.5	20-OCT-21
Selenium (Se)			<0.20		mg/kg		0.2	20-OCT-21
Silver (Ag)			<0.10		mg/kg		0.1	20-OCT-21
Thallium (Tl)			<0.050		mg/kg		0.05	20-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5625374								
WG3641234-1 MB								
Uranium (U)			<0.050		mg/kg		0.05	20-OCT-21
Vanadium (V)			<0.20		mg/kg		0.2	20-OCT-21
Zinc (Zn)			<2.0		mg/kg		2	20-OCT-21
MOISTURE-WT	**Soil**							
Batch R5624641								
WG3640317-3 DUP		**L2652130-1**						
% Moisture		14.7	15.4		%	5.1	20	20-OCT-21
WG3640317-2 LCS								
% Moisture			100.9		%		90-110	20-OCT-21
WG3640317-1 MB								
% Moisture			<0.25		%		0.25	20-OCT-21

Quality Control Report

Workorder: L2651507 Report Date: 21-OCT-21

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: Sarah Sipak

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

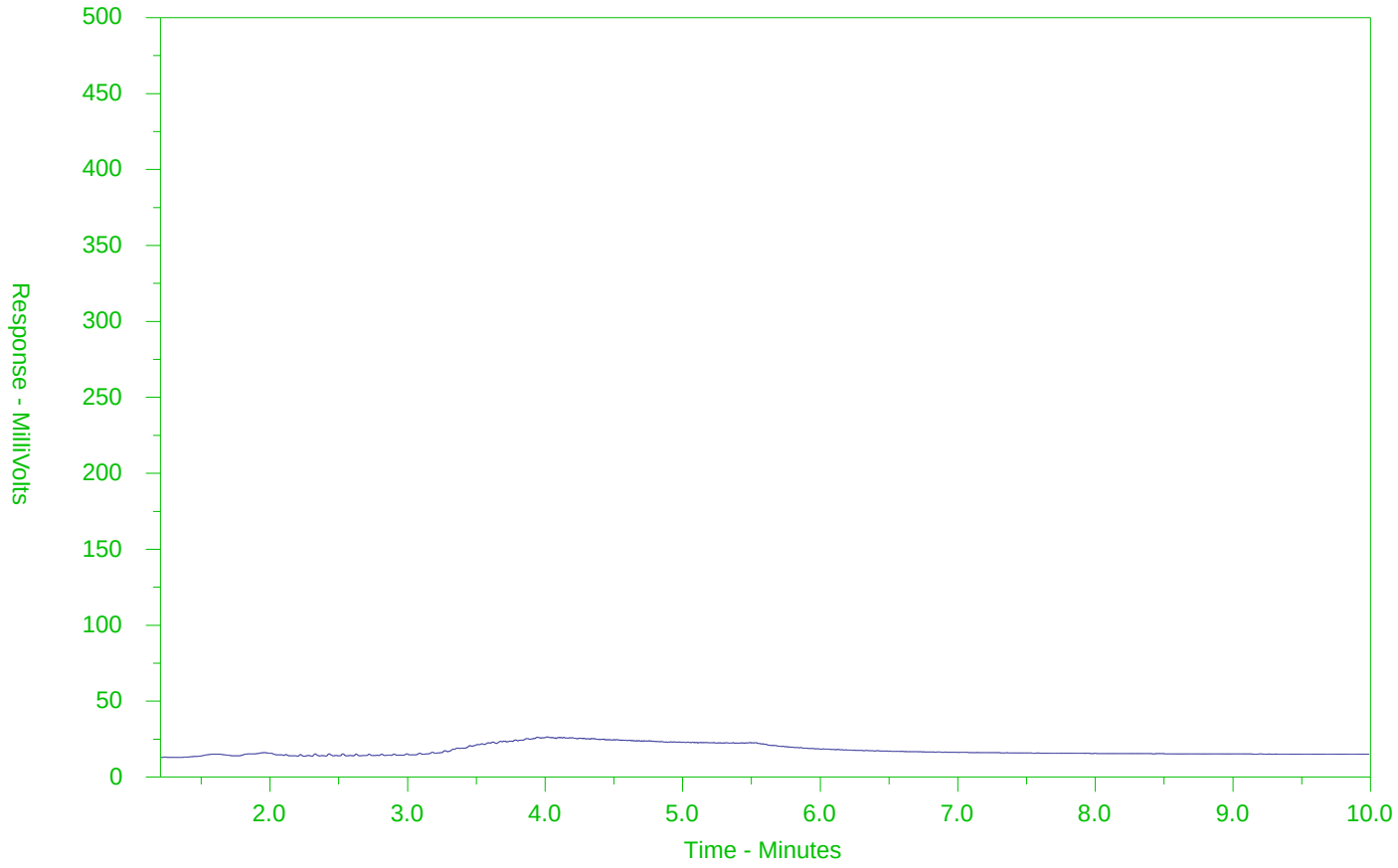
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2651507-2
Client Sample ID: 21-4-5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

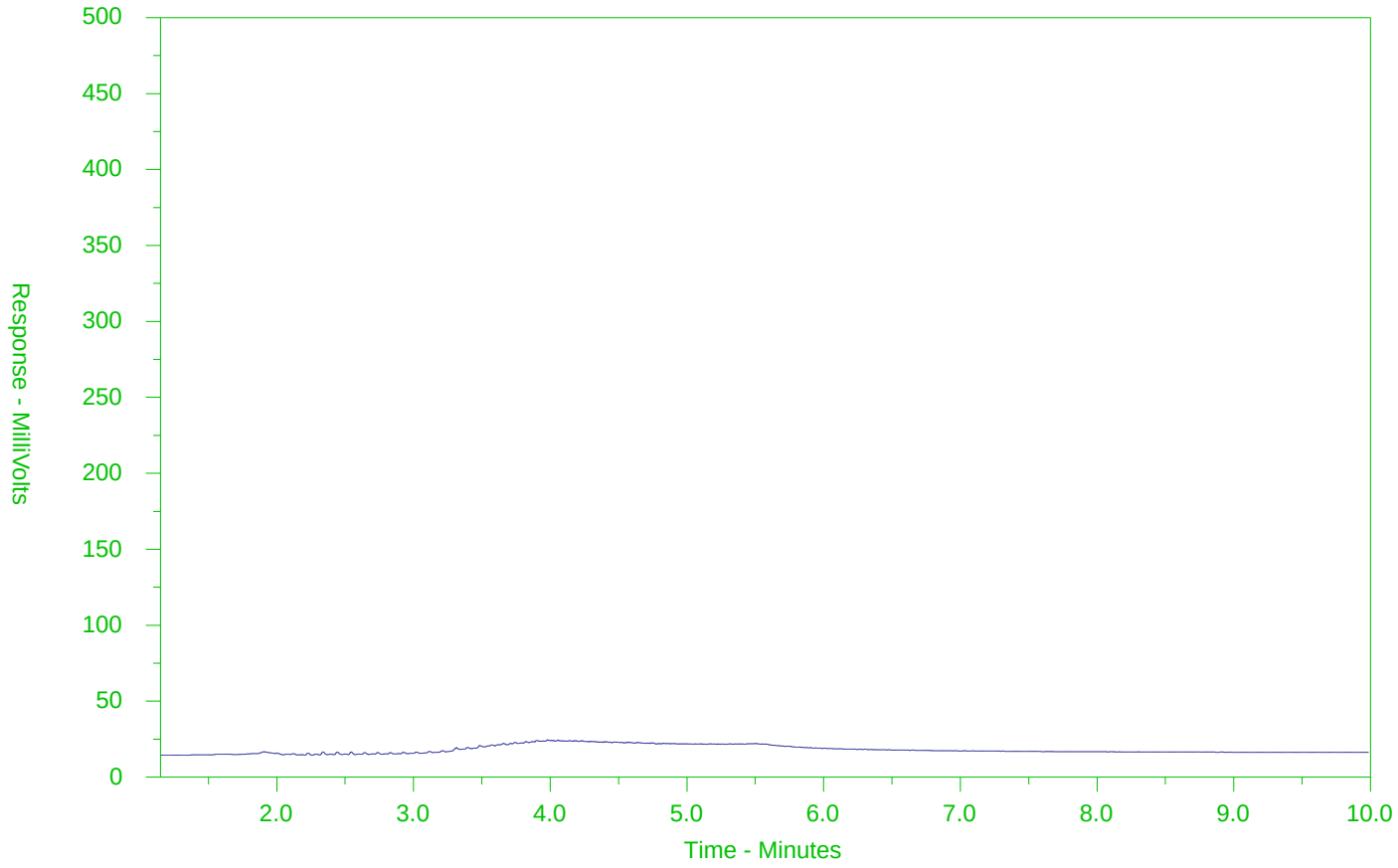
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2651507-4
Client Sample ID: 21-5-5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

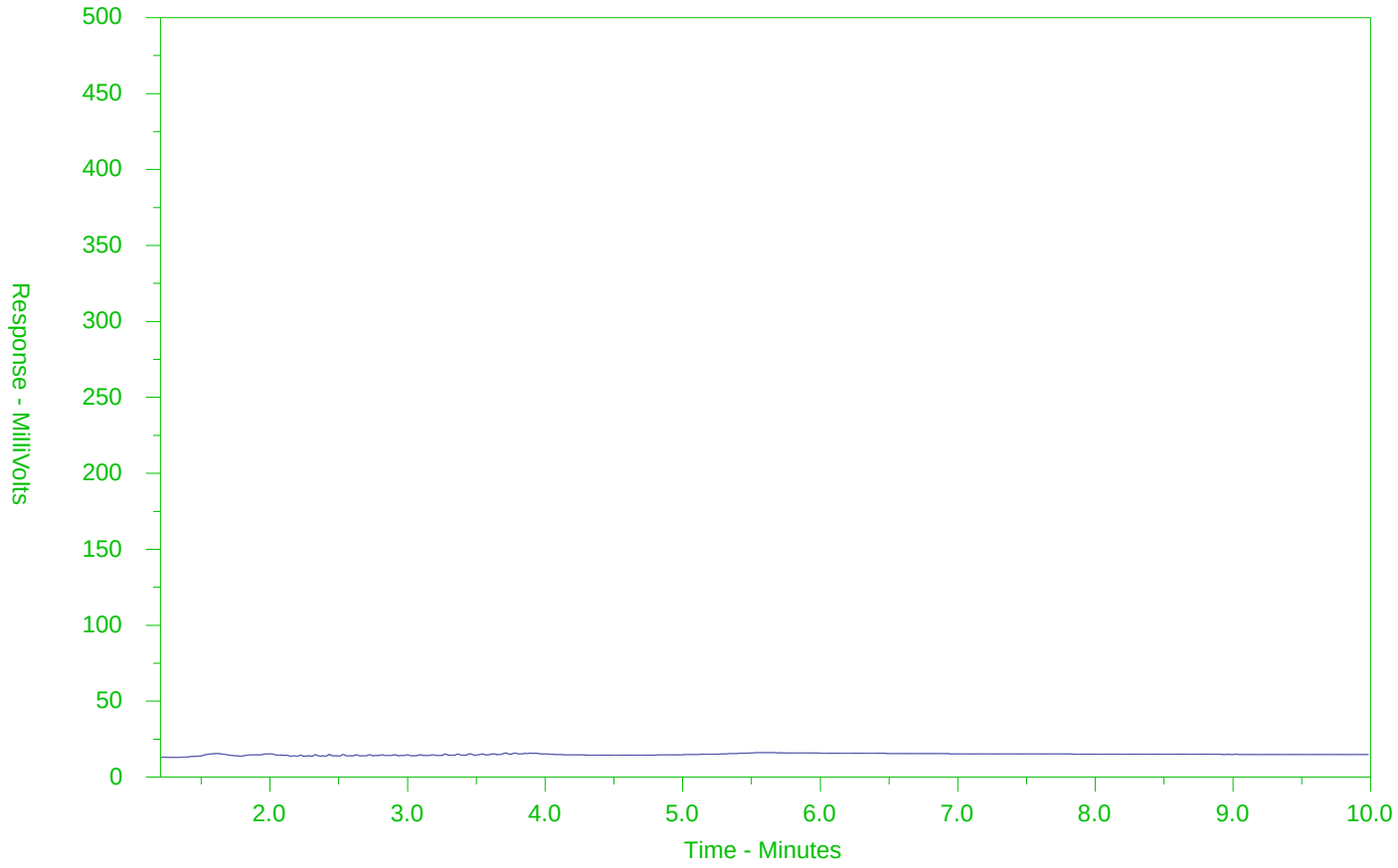
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2651507-6
Client Sample ID: 21-6-3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

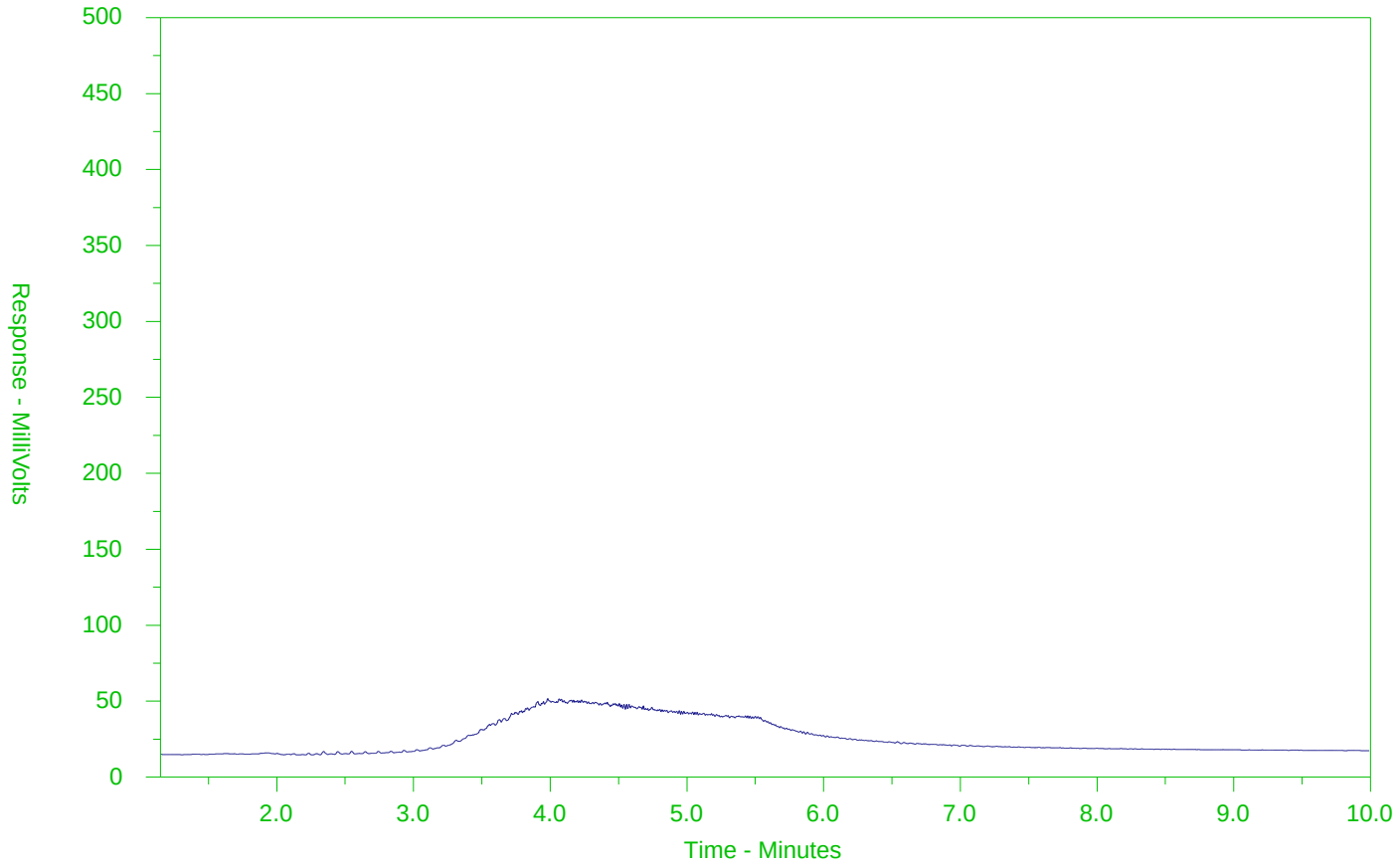
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2651507-8
Client Sample ID: 21-7-5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

L2651507-COFC

COC Number: 15 -

Page 1 of 1

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	Palmer Environmental Consulting Group Inc.
Contact:	Sarah Sipak
Phone:	416-617-2019 / (647)795-8153
	Company address below will appear on the final report
Street:	74 Berkeley Street
City/Province:	Toronto, ON
Postal Code:	M5A 2W7
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax sarah.sipak@pecg.ca
Email 2 chloe.stephenson@pecg.ca
Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax accounting@pecg.ca
Email 2 sarah.sipak@pecg.ca

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4] ☐ | 3 day [P3] ☐ | 2 day [P2] ☐
EMERGENCY: 1 Business day [E1] ☐ | Same Day, Weekend or Statutory holiday [E0] ☐

Date and Time Required for all E&P TATs: 20-Oct-21 5pm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: 24400
Job #: 1901204
PO / AFE: 1901204 RD
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only): L2651507
ALS Contact: Jen Barkshire-Paterson
Sampler: CS.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	PHC/BTEX	Number of Containers
	21-4-1	13-Oct-21		Soil	X		1
	21-4-5					X	3
	21-5-3				X		1
	21-5-5					X	3
	21-6-2				X		1
	21-6-3					X	3
	21-7-2				X		1
	21-7-5					X	3

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO
Are samples for human drinking water use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Table 3 RPI

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☒

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
27.0°C			7.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: CS	Date: Oct-13-21	Time:	Received by: AARON BURTON	Date: 13-OCT-202	Time: 15:10	Received by:	Date: 14-Oct-21	Time: 17:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

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

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

PALMER ENVIRONMENTAL CONSULTING
GROUP INC. (Richmond Hill)
ATTN: CHLOE STEPHENSON
74 Berkeley Street
Toronto ON M5V 1E3

Date Received: 22-OCT-21
Report Date: 29-OCT-21 13:21 (MT)
Version: FINAL

Client Phone: 647-795-8153

Certificate of Analysis

Lab Work Order #: L2654664

Project P.O. #: 1901204
Job Reference: 1901204
C of C Numbers:
Legal Site Desc:



KARANPARTAP SINGH
Account Manager

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

ANALYTICAL REPORT

Summary of Guideline Exceedances

Guideline ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit

Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)

(No parameter exceedances)

Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

(No parameter exceedances)

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

ANALYTICAL REPORT

Dissolved Metals - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID			
				L2654664-1	L2654664-3	L2654664-4	L2654664-5	L2654664-7
				22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21
				21-1	21-3	21-3D	21-4	21-5
Dissolved Metals Filtration Location		-	-	FIELD	FIELD	FIELD	FIELD	FIELD
Antimony (Sb)-Dissolved	ug/L	20000	20000	<1.0 DLHC	<1.0 DLHC	<1.0 DLHC	<1.0 DLHC	<1.0 DLHC
Arsenic (As)-Dissolved	ug/L	1900	1900	1.5 DLHC	1.9 DLHC	1.9 DLHC	<1.0 DLHC	1.8 DLHC
Barium (Ba)-Dissolved	ug/L	29000	29000	280 DLHC	152 DLHC	149 DLHC	129 DLHC	208 DLHC
Beryllium (Be)-Dissolved	ug/L	67	67	<1.0 DLHC	<1.0 DLHC	<1.0 DLHC	<1.0 DLHC	<1.0 DLHC
Boron (B)-Dissolved	ug/L	45000	45000	210 DLHC	750 DLHC	720 DLHC	120 DLHC	1080 DLHC
Cadmium (Cd)-Dissolved	ug/L	2.7	2.7	<0.050 DLHC	<0.050 DLHC	<0.050 DLHC	<0.050 DLHC	<0.050 DLHC
Chromium (Cr)-Dissolved	ug/L	810	810	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC
Cobalt (Co)-Dissolved	ug/L	66	66	2.4 DLHC	1.8 DLHC	1.7 DLHC	<1.0 DLHC	2.0 DLHC
Copper (Cu)-Dissolved	ug/L	87	87	<2.0 DLHC	<2.0 DLHC	<2.0 DLHC	<2.0 DLHC	<2.0 DLHC
Lead (Pb)-Dissolved	ug/L	25	25	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC
Molybdenum (Mo)-Dissolved	ug/L	9200	9200	6.69 DLHC	11.1 DLHC	10.6 DLHC	2.72 DLHC	13.1 DLHC
Nickel (Ni)-Dissolved	ug/L	490	490	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC
Selenium (Se)-Dissolved	ug/L	63	63	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC
Silver (Ag)-Dissolved	ug/L	1.5	1.5	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC	<0.50 DLHC
Sodium (Na)-Dissolved	ug/L	230000	2300000	355000 DLHC	537000 DLHC	532000 DLHC	276000 DLHC	789000 DLHC
Thallium (Tl)-Dissolved	ug/L	510	510	<0.10 DLHC	<0.10 DLHC	<0.10 DLHC	<0.10 DLHC	<0.10 DLHC
Uranium (U)-Dissolved	ug/L	420	420	7.95 DLHC	6.90 DLHC	6.78 DLHC	6.57 DLHC	5.45 DLHC
Vanadium (V)-Dissolved	ug/L	250	250	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC	<5.0 DLHC
Zinc (Zn)-Dissolved	ug/L	1100	1100	10 DLHC	<10 DLHC	<10 DLHC	<10 DLHC	<10 DLHC

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

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

Volatile Organic Compounds - WATER

				Lab ID	L2654664-1	L2654664-2	L2654664-3	L2654664-4	L2654664-5	L2654664-6	L2654664-7	L2654664-8
				Sample Date	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21
				Sample ID	21-1	21-2	21-3	21-3D	21-4	21-2D	21-5	TRIP BLANK
		Guide Limits										
Analyte	Unit	#1	#2									
Acetone	ug/L	130000	130000		<30					<30		<30
Benzene	ug/L	44	430	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50 OWP	<0.50
Bromodichloromethane	ug/L	85000	85000		<2.0					<2.0		<2.0
Bromoform	ug/L	380	770		<5.0					<5.0		<5.0
Bromomethane	ug/L	5.6	56		<0.50					<0.50		<0.50
Carbon tetrachloride	ug/L	0.79	8.4		<0.20					<0.20		<0.20
Chlorobenzene	ug/L	630	630		<0.50					<0.50		<0.50
Dibromochloromethane	ug/L	82000	82000		<2.0					<2.0		<2.0
Chloroform	ug/L	2.4	22		<1.0					<1.0		<1.0
1,2-Dibromoethane	ug/L	0.25	0.83		<0.20					<0.20		<0.20
1,2-Dichlorobenzene	ug/L	4600	9600		<0.50					<0.50		<0.50
1,3-Dichlorobenzene	ug/L	9600	9600		<0.50					<0.50		<0.50
1,4-Dichlorobenzene	ug/L	8	67		<0.50					<0.50		<0.50
Dichlorodifluoromethane	ug/L	4400	4400		<2.0					<2.0		<2.0
1,1-Dichloroethane	ug/L	320	3100		<0.50					<0.50		<0.50
1,2-Dichloroethane	ug/L	1.6	12		<0.50					<0.50		<0.50
1,1-Dichloroethylene	ug/L	1.6	17		<0.50					<0.50		<0.50
cis-1,2-Dichloroethylene	ug/L	1.6	17		<0.50					<0.50		<0.50
trans-1,2-Dichloroethylene	ug/L	1.6	17		<0.50					<0.50		<0.50
Methylene Chloride	ug/L	610	5500		<5.0					<5.0		<5.0
1,2-Dichloropropane	ug/L	16	140		<0.50					<0.50		<0.50
cis-1,3-Dichloropropene	ug/L	-	-		<0.30					<0.30		<0.30
trans-1,3-Dichloropropene	ug/L	-	-		<0.30					<0.30		<0.30
1,3-Dichloropropene (cis & trans)	ug/L	5.2	45		<0.50					<0.50		<0.50
Ethylbenzene	ug/L	2300	2300	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50 OWP	<0.50
n-Hexane	ug/L	51	520		<0.50					<0.50		<0.50
Methyl Ethyl Ketone	ug/L	470000	1500000		<20					<20		<20
Methyl Isobutyl Ketone	ug/L	140000	580000		<20					<20		<20
MTBE	ug/L	190	1400		<2.0					<2.0		<2.0
Styrene	ug/L	1300	9100		<0.50					<0.50		<0.50

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

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

Volatile Organic Compounds - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2654664-1	L2654664-2	L2654664-3	L2654664-4	L2654664-5	L2654664-6	L2654664-7	L2654664-8
				Sample Date	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21
				Sample ID	21-1	21-2	21-3	21-3D	21-4	21-2D	21-5	TRIP BLANK
1,1,1,2-Tetrachloroethane	ug/L	3.3	28		<0.50				<0.50		<0.50
1,1,2,2-Tetrachloroethane	ug/L	3.2	15		<0.50				<0.50		<0.50
Tetrachloroethylene	ug/L	1.6	17		<0.50				<0.50		<0.50
Toluene	ug/L	18000	18000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50 OWP	<0.50
1,1,1-Trichloroethane	ug/L	640	6700		<0.50				<0.50		<0.50
1,1,2-Trichloroethane	ug/L	4.7	30		<0.50				<0.50		<0.50
Trichloroethylene	ug/L	1.6	17		<0.50				<0.50		<0.50
Trichlorofluoromethane	ug/L	2500	2500		<5.0				<5.0		<5.0
Vinyl chloride	ug/L	0.5	1.7		<0.50				<0.50		<0.50
o-Xylene	ug/L	-	-	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30 OWP	<0.30
m+p-Xylenes	ug/L	-	-	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.48 OWP	<0.40
Xylenes (Total)	ug/L	4200	4200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-	101.8	98.5	96.3	97.7	93.3	98.1	96.1	99.3
Surrogate: 1,4-Difluorobenzene	%	-	-	101.2	100.3	101.1	100.6	100.7	101.1	101.8	100.5

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

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

Hydrocarbons - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID						
				L2654664-1	L2654664-2	L2654664-3	L2654664-4	L2654664-5	L2654664-6	L2654664-7
				22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21	22-OCT-21
				21-1	21-2	21-3	21-3D	21-4	21-2D	21-5
F1 (C6-C10)	ug/L	750	750	<25	<25	<25	<25	<25	<25	<25 OWP
F1-BTEX	ug/L	750	750	<25	<25	<25	<25	<25	<25	<25
F2 (C10-C16)	ug/L	150	150	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	ug/L	500	500	<250	<250	<250	<250	<250	<250	<250
F4 (C34-C50)	ug/L	500	500	<250	<250	<250	<250	<250	<250	<250
Total Hydrocarbons (C6-C50)	ug/L	-	-	<370	<370	<370	<370	<370	<370	<370
Chrom. to baseline at nC50	ppm	-	-	YES	YES	YES	YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	94.8	99.6	90.7	97.2	95.5	93.9	98.0
Surrogate: 3,4-Dichlorotoluene	%	-	-	89.9	87.5	96.0	69.0	62.3	86.4	94.8

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

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

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of

Reference Information

sediment.

DLHC Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
BTX-511-HS-WT	Water	BTEX by Headspace	SW846 8260 (511)

BTX is determined by analyzing by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F1-F4-511-CALC-WT	Water	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Water	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Water	F2-F4-O.Reg 153/04 (July 2011)	EPA 3511/CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, 2001.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
MET-D-UG/L-MS-WT	Water	Diss. Metals in Water by ICPMS (ug/L)	EPA 200.8

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

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

VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Water	VOC by GCMS HS O.Reg 153/04 (July 2011)	SW846 8260

Liquid samples are analyzed by headspace GC/MSD.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011 and as of November 30, 2020), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

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

Chain of Custody Numbers:

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

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

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

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

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT	**Water**							
Batch R5628378								
WG3645216-4 DUP		**WG3645216-3**						
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-OCT-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-OCT-21
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	26-OCT-21
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	26-OCT-21
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-OCT-21
WG3645216-1 LCS								
Benzene			106.1		%		70-130	26-OCT-21
Ethylbenzene			98.3		%		70-130	26-OCT-21
m+p-Xylenes			106.0		%		70-130	26-OCT-21
o-Xylene			101.2		%		70-130	26-OCT-21
Toluene			97.3		%		70-130	26-OCT-21
WG3645216-2 MB								
Benzene			<0.50		ug/L		0.5	26-OCT-21
Ethylbenzene			<0.50		ug/L		0.5	26-OCT-21
m+p-Xylenes			<0.40		ug/L		0.4	26-OCT-21
o-Xylene			<0.30		ug/L		0.3	26-OCT-21
Toluene			<0.50		ug/L		0.5	26-OCT-21
Surrogate: 1,4-Difluorobenzene			103.0		%		70-130	26-OCT-21
Surrogate: 4-Bromofluorobenzene			96.7		%		70-130	26-OCT-21
WG3645216-5 MS		**WG3645216-3**						
Benzene			102.1		%		50-140	26-OCT-21
Ethylbenzene			90.0		%		50-140	26-OCT-21
m+p-Xylenes			99.6		%		50-140	26-OCT-21
o-Xylene			95.1		%		50-140	26-OCT-21
Toluene			91.1		%		50-140	26-OCT-21
Batch R5630028								
WG3647008-4 DUP		**WG3647008-3**						
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	28-OCT-21
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	28-OCT-21
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
WG3647008-1 LCS								
Benzene			102.0		%		70-130	28-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT	**Water**							
Batch R5630028								
WG3647008-1 LCS								
Ethylbenzene			102.9		%		70-130	28-OCT-21
m+p-Xylenes			96.9		%		70-130	28-OCT-21
o-Xylene			100.0		%		70-130	28-OCT-21
Toluene			104.6		%		70-130	28-OCT-21
WG3647008-2 MB								
Benzene			<0.50		ug/L		0.5	28-OCT-21
Ethylbenzene			<0.50		ug/L		0.5	28-OCT-21
m+p-Xylenes			<0.40		ug/L		0.4	28-OCT-21
o-Xylene			<0.30		ug/L		0.3	28-OCT-21
Toluene			<0.50		ug/L		0.5	28-OCT-21
Surrogate: 1,4-Difluorobenzene			100.6		%		70-130	28-OCT-21
Surrogate: 4-Bromofluorobenzene			96.0		%		70-130	28-OCT-21
WG3647008-5 MS		**WG3647008-3**						
Benzene			101.5		%		50-140	28-OCT-21
Ethylbenzene			98.7		%		50-140	28-OCT-21
m+p-Xylenes			93.6		%		50-140	28-OCT-21
o-Xylene			97.1		%		50-140	28-OCT-21
Toluene			99.5		%		50-140	28-OCT-21
F1-HS-511-WT	**Water**							
Batch R5628378								
WG3645216-4 DUP		**WG3645216-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	26-OCT-21
WG3645216-1 LCS								
F1 (C6-C10)			98.1		%		80-120	26-OCT-21
WG3645216-2 MB								
F1 (C6-C10)			<25		ug/L		25	26-OCT-21
Surrogate: 3,4-Dichlorotoluene			105.7		%		60-140	26-OCT-21
WG3645216-5 MS		**WG3645216-3**						
F1 (C6-C10)			85.4		%		60-140	26-OCT-21
Batch R5630028								
WG3647008-4 DUP		**WG3647008-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	28-OCT-21
WG3647008-1 LCS								
F1 (C6-C10)			98.1		%		80-120	28-OCT-21
WG3647008-2 MB								

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Water**							
Batch R5630028								
WG3647008-2 MB								
F1 (C6-C10)			<25		ug/L		25	28-OCT-21
Surrogate: 3,4-Dichlorotoluene			109.8		%		60-140	28-OCT-21
WG3647008-5 MS		**WG3647008-3**						
F1 (C6-C10)			81.5		%		60-140	28-OCT-21
Batch R5630256								
WG3647170-4 DUP		**WG3647170-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	28-OCT-21
WG3647170-1 LCS								
F1 (C6-C10)			104.2		%		80-120	28-OCT-21
WG3647170-2 MB								
F1 (C6-C10)			<25		ug/L		25	28-OCT-21
Surrogate: 3,4-Dichlorotoluene			110.4		%		60-140	28-OCT-21
WG3647170-5 MS		**WG3647170-3**						
F1 (C6-C10)			102.3		%		60-140	28-OCT-21
F2-F4-511-WT	**Water**							
Batch R5629372								
WG3645482-2 LCS								
F2 (C10-C16)			102.3		%		70-130	27-OCT-21
F3 (C16-C34)			99.1		%		70-130	27-OCT-21
F4 (C34-C50)			106.5		%		70-130	27-OCT-21
WG3645482-1 MB								
F2 (C10-C16)			<100		ug/L		100	27-OCT-21
F3 (C16-C34)			<250		ug/L		250	27-OCT-21
F4 (C34-C50)			<250		ug/L		250	27-OCT-21
Surrogate: 2-Bromobenzotrifluoride			90.7		%		60-140	27-OCT-21
Batch R5629382								
WG3645486-2 LCS								
F2 (C10-C16)			107.2		%		70-130	27-OCT-21
F3 (C16-C34)			104.4		%		70-130	27-OCT-21
F4 (C34-C50)			113.1		%		70-130	27-OCT-21
WG3645486-1 MB								
F2 (C10-C16)			<100		ug/L		100	27-OCT-21
F3 (C16-C34)			<250		ug/L		250	27-OCT-21
F4 (C34-C50)			<250		ug/L		250	27-OCT-21
Surrogate: 2-Bromobenzotrifluoride			89.6		%		60-140	27-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5628424								
WG3645014-4 DUP		**WG3645014-3**						
Antimony (Sb)-Dissolved		0.16	0.16		ug/L	2.8	20	25-OCT-21
Arsenic (As)-Dissolved		1.31	1.38		ug/L	5.2	20	25-OCT-21
Barium (Ba)-Dissolved		357	357		ug/L	0.2	20	25-OCT-21
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	25-OCT-21
Boron (B)-Dissolved		68	69		ug/L	1.7	20	25-OCT-21
Cadmium (Cd)-Dissolved		0.0064	0.0075		ug/L	16	20	25-OCT-21
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	25-OCT-21
Cobalt (Co)-Dissolved		0.11	0.11		ug/L	1.7	20	25-OCT-21
Copper (Cu)-Dissolved		<0.20	<0.20	RPD-NA	ug/L	N/A	20	25-OCT-21
Lead (Pb)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	25-OCT-21
Molybdenum (Mo)-Dissolved		20.4	20.2		ug/L	1.0	20	25-OCT-21
Nickel (Ni)-Dissolved		0.62	0.61		ug/L	2.1	20	25-OCT-21
Selenium (Se)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	25-OCT-21
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	25-OCT-21
Sodium (Na)-Dissolved		142000	146000		ug/L	2.7	20	25-OCT-21
Thallium (Tl)-Dissolved		<0.010	<0.010	RPD-NA	ug/L	N/A	20	25-OCT-21
Uranium (U)-Dissolved		0.250	0.241		ug/L	3.6	20	25-OCT-21
Vanadium (V)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	25-OCT-21
Zinc (Zn)-Dissolved		1.1	1.2		ug/L	2.8	20	25-OCT-21
WG3645014-2 LCS								
Antimony (Sb)-Dissolved			102.5		%		80-120	25-OCT-21
Arsenic (As)-Dissolved			103.5		%		80-120	25-OCT-21
Barium (Ba)-Dissolved			101.6		%		80-120	25-OCT-21
Beryllium (Be)-Dissolved			102.7		%		80-120	25-OCT-21
Boron (B)-Dissolved			97.8		%		80-120	25-OCT-21
Cadmium (Cd)-Dissolved			99.1		%		80-120	25-OCT-21
Chromium (Cr)-Dissolved			101.4		%		80-120	25-OCT-21
Cobalt (Co)-Dissolved			101.1		%		80-120	25-OCT-21
Copper (Cu)-Dissolved			100.3		%		80-120	25-OCT-21
Lead (Pb)-Dissolved			101.7		%		80-120	25-OCT-21
Molybdenum (Mo)-Dissolved			102.8		%		80-120	25-OCT-21
Nickel (Ni)-Dissolved			100.3		%		80-120	25-OCT-21
Selenium (Se)-Dissolved			100.3		%		80-120	25-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5628424								
WG3645014-2 LCS								
Silver (Ag)-Dissolved			104.2		%		80-120	25-OCT-21
Sodium (Na)-Dissolved			103.2		%		80-120	25-OCT-21
Thallium (Tl)-Dissolved			101.7		%		80-120	25-OCT-21
Uranium (U)-Dissolved			104.0		%		80-120	25-OCT-21
Vanadium (V)-Dissolved			102.3		%		80-120	25-OCT-21
Zinc (Zn)-Dissolved			97.8		%		80-120	25-OCT-21
WG3645014-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	25-OCT-21
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	25-OCT-21
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	25-OCT-21
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	25-OCT-21
Boron (B)-Dissolved			<10		ug/L		10	25-OCT-21
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	25-OCT-21
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	25-OCT-21
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	25-OCT-21
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	25-OCT-21
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	25-OCT-21
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	25-OCT-21
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	25-OCT-21
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	25-OCT-21
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	25-OCT-21
Sodium (Na)-Dissolved			<50		ug/L		50	25-OCT-21
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	25-OCT-21
Uranium (U)-Dissolved			<0.010		ug/L		0.01	25-OCT-21
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	25-OCT-21
Zinc (Zn)-Dissolved			<1.0		ug/L		1	25-OCT-21
WG3645014-5 MS		**WG3645014-3**						
Antimony (Sb)-Dissolved			106.9		%		70-130	25-OCT-21
Arsenic (As)-Dissolved			113.1		%		70-130	25-OCT-21
Barium (Ba)-Dissolved			N/A	MS-B	%		-	25-OCT-21
Beryllium (Be)-Dissolved			113.4		%		70-130	25-OCT-21
Boron (B)-Dissolved			N/A	MS-B	%		-	25-OCT-21
Cadmium (Cd)-Dissolved			96.6		%		70-130	25-OCT-21
Chromium (Cr)-Dissolved			105.5		%		70-130	25-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R5628424								
WG3645014-5 MS		**WG3645014-3**						
Cobalt (Co)-Dissolved			98.0		%		70-130	25-OCT-21
Copper (Cu)-Dissolved			92.0		%		70-130	25-OCT-21
Lead (Pb)-Dissolved			94.8		%		70-130	25-OCT-21
Molybdenum (Mo)-Dissolved			N/A	MS-B	%		-	25-OCT-21
Nickel (Ni)-Dissolved			93.8		%		70-130	25-OCT-21
Selenium (Se)-Dissolved			114.6		%		70-130	25-OCT-21
Silver (Ag)-Dissolved			69.4	MES	%		70-130	25-OCT-21
Sodium (Na)-Dissolved			N/A	MS-B	%		-	25-OCT-21
Thallium (Tl)-Dissolved			95.8		%		70-130	25-OCT-21
Uranium (U)-Dissolved			94.5		%		70-130	25-OCT-21
Vanadium (V)-Dissolved			109.5		%		70-130	25-OCT-21
Zinc (Zn)-Dissolved			91.8		%		70-130	25-OCT-21
VOC-511-HS-WT	**Water**							
Batch R5630256								
WG3647170-4 DUP		**WG3647170-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	28-OCT-21
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	28-OCT-21
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	28-OCT-21
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	28-OCT-21
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	28-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5630256								
WG3647170-4 DUP		**WG3647170-3**						
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-OCT-21
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	28-OCT-21
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	28-OCT-21
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	28-OCT-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	28-OCT-21
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	28-OCT-21
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	28-OCT-21
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	28-OCT-21
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	28-OCT-21
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	28-OCT-21
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	28-OCT-21
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	28-OCT-21
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-OCT-21
WG3647170-1 LCS								
1,1,1,2-Tetrachloroethane			97.7		%		70-130	28-OCT-21
1,1,2,2-Tetrachloroethane			99.1		%		70-130	28-OCT-21
1,1,1-Trichloroethane			99.97		%		70-130	28-OCT-21
1,1,2-Trichloroethane			97.9		%		70-130	28-OCT-21
1,1-Dichloroethane			98.5		%		70-130	28-OCT-21
1,1-Dichloroethylene			102.4		%		70-130	28-OCT-21
1,2-Dibromoethane			97.4		%		70-130	28-OCT-21
1,2-Dichlorobenzene			95.7		%		70-130	28-OCT-21
1,2-Dichloroethane			98.6		%		70-130	28-OCT-21
1,2-Dichloropropane			98.6		%		70-130	28-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5630256								
WG3647170-1 LCS								
1,3-Dichlorobenzene			91.8		%		70-130	28-OCT-21
1,4-Dichlorobenzene			92.6		%		70-130	28-OCT-21
Acetone			105.2		%		60-140	28-OCT-21
Benzene			95.0		%		70-130	28-OCT-21
Bromodichloromethane			104.9		%		70-130	28-OCT-21
Bromoform			99.95		%		70-130	28-OCT-21
Bromomethane			105.1		%		60-140	28-OCT-21
Carbon tetrachloride			98.3		%		70-130	28-OCT-21
Chlorobenzene			96.8		%		70-130	28-OCT-21
Chloroform			96.9		%		70-130	28-OCT-21
cis-1,2-Dichloroethylene			96.9		%		70-130	28-OCT-21
cis-1,3-Dichloropropene			92.5		%		70-130	28-OCT-21
Dibromochloromethane			100.9		%		70-130	28-OCT-21
Dichlorodifluoromethane			106.9		%		50-140	28-OCT-21
Ethylbenzene			95.9		%		70-130	28-OCT-21
n-Hexane			102.0		%		70-130	28-OCT-21
m+p-Xylenes			95.6		%		70-130	28-OCT-21
Methyl Ethyl Ketone			100.3		%		60-140	28-OCT-21
Methyl Isobutyl Ketone			107.1		%		60-140	28-OCT-21
Methylene Chloride			99.7		%		70-130	28-OCT-21
MTBE			99.8		%		70-130	28-OCT-21
o-Xylene			97.0		%		70-130	28-OCT-21
Styrene			100.6		%		70-130	28-OCT-21
Tetrachloroethylene			93.3		%		70-130	28-OCT-21
Toluene			94.8		%		70-130	28-OCT-21
trans-1,2-Dichloroethylene			100.8		%		70-130	28-OCT-21
trans-1,3-Dichloropropene			90.0		%		70-130	28-OCT-21
Trichloroethylene			95.9		%		70-130	28-OCT-21
Trichlorofluoromethane			104.1		%		60-140	28-OCT-21
Vinyl chloride			99.6		%		60-140	28-OCT-21
WG3647170-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	28-OCT-21
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	28-OCT-21
1,1,1-Trichloroethane			<0.50		ug/L		0.5	28-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5630256								
WG3647170-2 MB								
1,1,2-Trichloroethane			<0.50		ug/L		0.5	28-OCT-21
1,1-Dichloroethane			<0.50		ug/L		0.5	28-OCT-21
1,1-Dichloroethylene			<0.50		ug/L		0.5	28-OCT-21
1,2-Dibromoethane			<0.20		ug/L		0.2	28-OCT-21
1,2-Dichlorobenzene			<0.50		ug/L		0.5	28-OCT-21
1,2-Dichloroethane			<0.50		ug/L		0.5	28-OCT-21
1,2-Dichloropropane			<0.50		ug/L		0.5	28-OCT-21
1,3-Dichlorobenzene			<0.50		ug/L		0.5	28-OCT-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	28-OCT-21
Acetone			<30		ug/L		30	28-OCT-21
Benzene			<0.50		ug/L		0.5	28-OCT-21
Bromodichloromethane			<2.0		ug/L		2	28-OCT-21
Bromoform			<5.0		ug/L		5	28-OCT-21
Bromomethane			<0.50		ug/L		0.5	28-OCT-21
Carbon tetrachloride			<0.20		ug/L		0.2	28-OCT-21
Chlorobenzene			<0.50		ug/L		0.5	28-OCT-21
Chloroform			<1.0		ug/L		1	28-OCT-21
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	28-OCT-21
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	28-OCT-21
Dibromochloromethane			<2.0		ug/L		2	28-OCT-21
Dichlorodifluoromethane			<2.0		ug/L		2	28-OCT-21
Ethylbenzene			<0.50		ug/L		0.5	28-OCT-21
n-Hexane			<0.50		ug/L		0.5	28-OCT-21
m+p-Xylenes			<0.40		ug/L		0.4	28-OCT-21
Methyl Ethyl Ketone			<20		ug/L		20	28-OCT-21
Methyl Isobutyl Ketone			<20		ug/L		20	28-OCT-21
Methylene Chloride			<5.0		ug/L		5	28-OCT-21
MTBE			<2.0		ug/L		2	28-OCT-21
o-Xylene			<0.30		ug/L		0.3	28-OCT-21
Styrene			<0.50		ug/L		0.5	28-OCT-21
Tetrachloroethylene			<0.50		ug/L		0.5	28-OCT-21
Toluene			<0.50		ug/L		0.5	28-OCT-21
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	28-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch	**R5630256**							
WG3647170-2	**MB**							
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	28-OCT-21
Trichloroethylene			<0.50		ug/L		0.5	28-OCT-21
Trichlorofluoromethane			<5.0		ug/L		5	28-OCT-21
Vinyl chloride			<0.50		ug/L		0.5	28-OCT-21
Surrogate: 1,4-Difluorobenzene			100.9		%		70-130	28-OCT-21
Surrogate: 4-Bromofluorobenzene			98.7		%		70-130	28-OCT-21
WG3647170-5	**MS**	**WG3647170-3**						
1,1,1,2-Tetrachloroethane			100.5		%		50-140	28-OCT-21
1,1,2,2-Tetrachloroethane			98.7		%		50-140	28-OCT-21
1,1,1-Trichloroethane			101.8		%		50-140	28-OCT-21
1,1,2-Trichloroethane			99.6		%		50-140	28-OCT-21
1,1-Dichloroethane			99.5		%		50-140	28-OCT-21
1,1-Dichloroethylene			100.8		%		50-140	28-OCT-21
1,2-Dibromoethane			99.2		%		50-140	28-OCT-21
1,2-Dichlorobenzene			98.7		%		50-140	28-OCT-21
1,2-Dichloroethane			100.8		%		50-140	28-OCT-21
1,2-Dichloropropane			100.0		%		50-140	28-OCT-21
1,3-Dichlorobenzene			94.5		%		50-140	28-OCT-21
1,4-Dichlorobenzene			94.4		%		50-140	28-OCT-21
Acetone			104.9		%		50-140	28-OCT-21
Benzene			96.0		%		50-140	28-OCT-21
Bromodichloromethane			107.7		%		50-140	28-OCT-21
Bromoform			102.2		%		50-140	28-OCT-21
Bromomethane			99.6		%		50-140	28-OCT-21
Carbon tetrachloride			100.2		%		50-140	28-OCT-21
Chlorobenzene			98.5		%		50-140	28-OCT-21
Chloroform			98.6		%		50-140	28-OCT-21
cis-1,2-Dichloroethylene			99.1		%		50-140	28-OCT-21
cis-1,3-Dichloropropene			89.1		%		50-140	28-OCT-21
Dibromochloromethane			103.4		%		50-140	28-OCT-21
Dichlorodifluoromethane			91.8		%		50-140	28-OCT-21
Ethylbenzene			97.3		%		50-140	28-OCT-21
n-Hexane			99.7		%		50-140	28-OCT-21
m+p-Xylenes			96.5		%		50-140	28-OCT-21

Quality Control Report

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R5630256								
WG3647170-5 MS		**WG3647170-3**						
Methyl Ethyl Ketone			102.6		%		50-140	28-OCT-21
Methyl Isobutyl Ketone			108.1		%		50-140	28-OCT-21
Methylene Chloride			99.7		%		50-140	28-OCT-21
MTBE			100.8		%		50-140	28-OCT-21
o-Xylene			98.7		%		50-140	28-OCT-21
Styrene			100.6		%		50-140	28-OCT-21
Tetrachloroethylene			93.9		%		50-140	28-OCT-21
Toluene			95.6		%		50-140	28-OCT-21
trans-1,2-Dichloroethylene			99.1		%		50-140	28-OCT-21
trans-1,3-Dichloropropene			86.2		%		50-140	28-OCT-21
Trichloroethylene			96.5		%		50-140	28-OCT-21
Trichlorofluoromethane			103.1		%		50-140	28-OCT-21
Vinyl chloride			94.0		%		50-140	28-OCT-21

Quality Control Report

Workorder: L2654664 Report Date: 29-OCT-21

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
74 Berkeley Street
Toronto ON M5V 1E3
Contact: CHLOE STEPHENSON

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

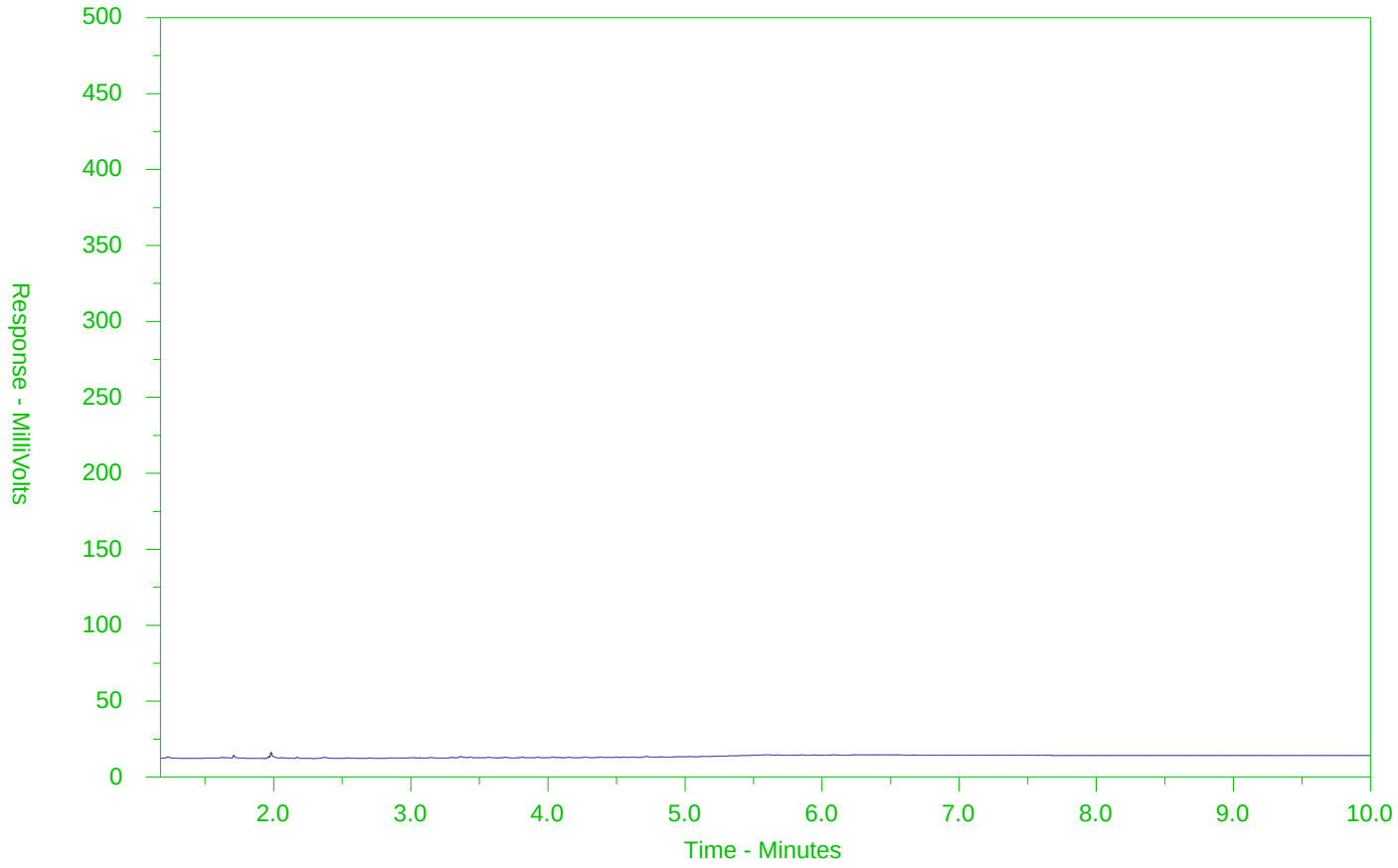
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2654664-1
Client Sample ID: 21-1



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

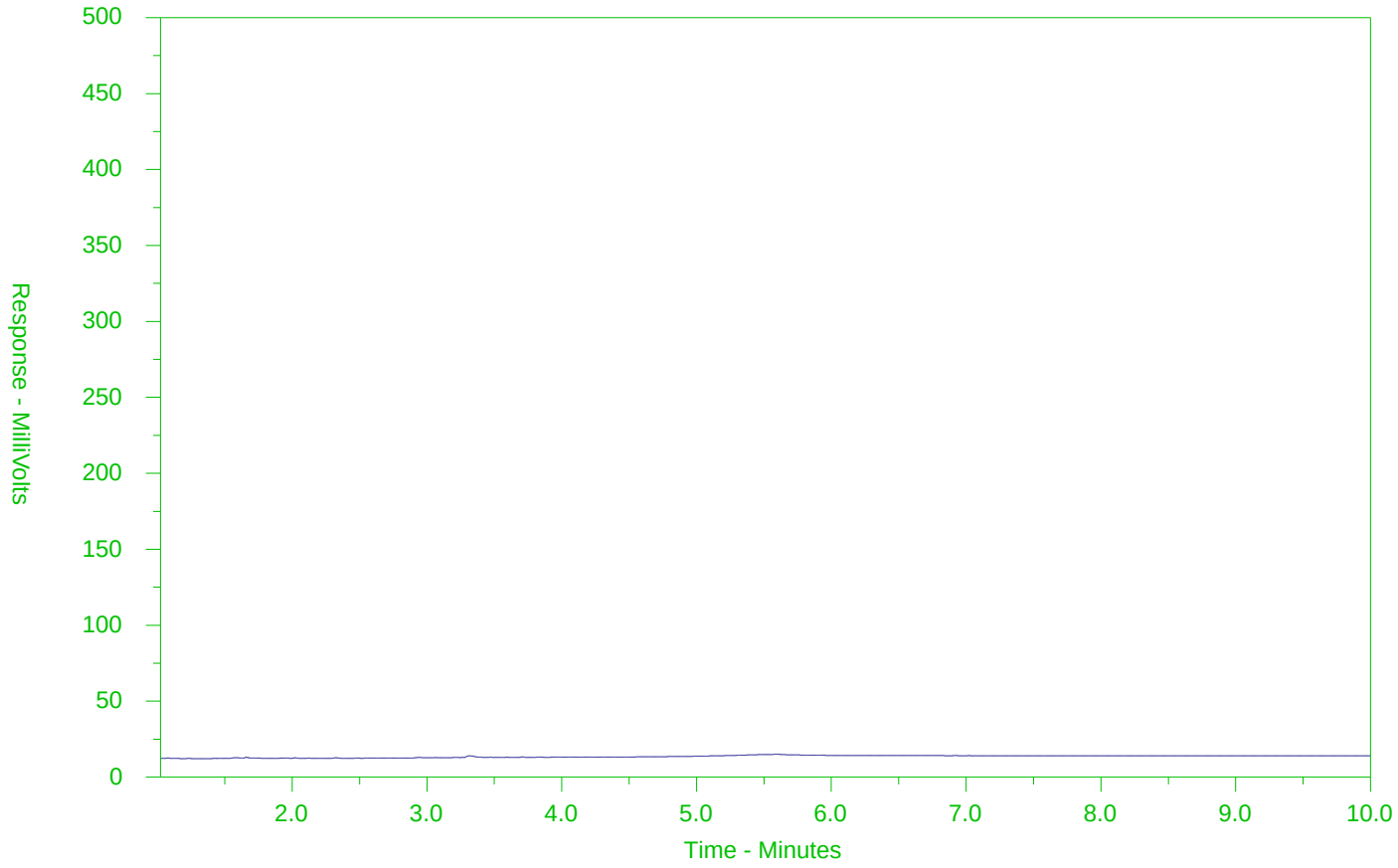
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2654664-2
Client Sample ID: 21-2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

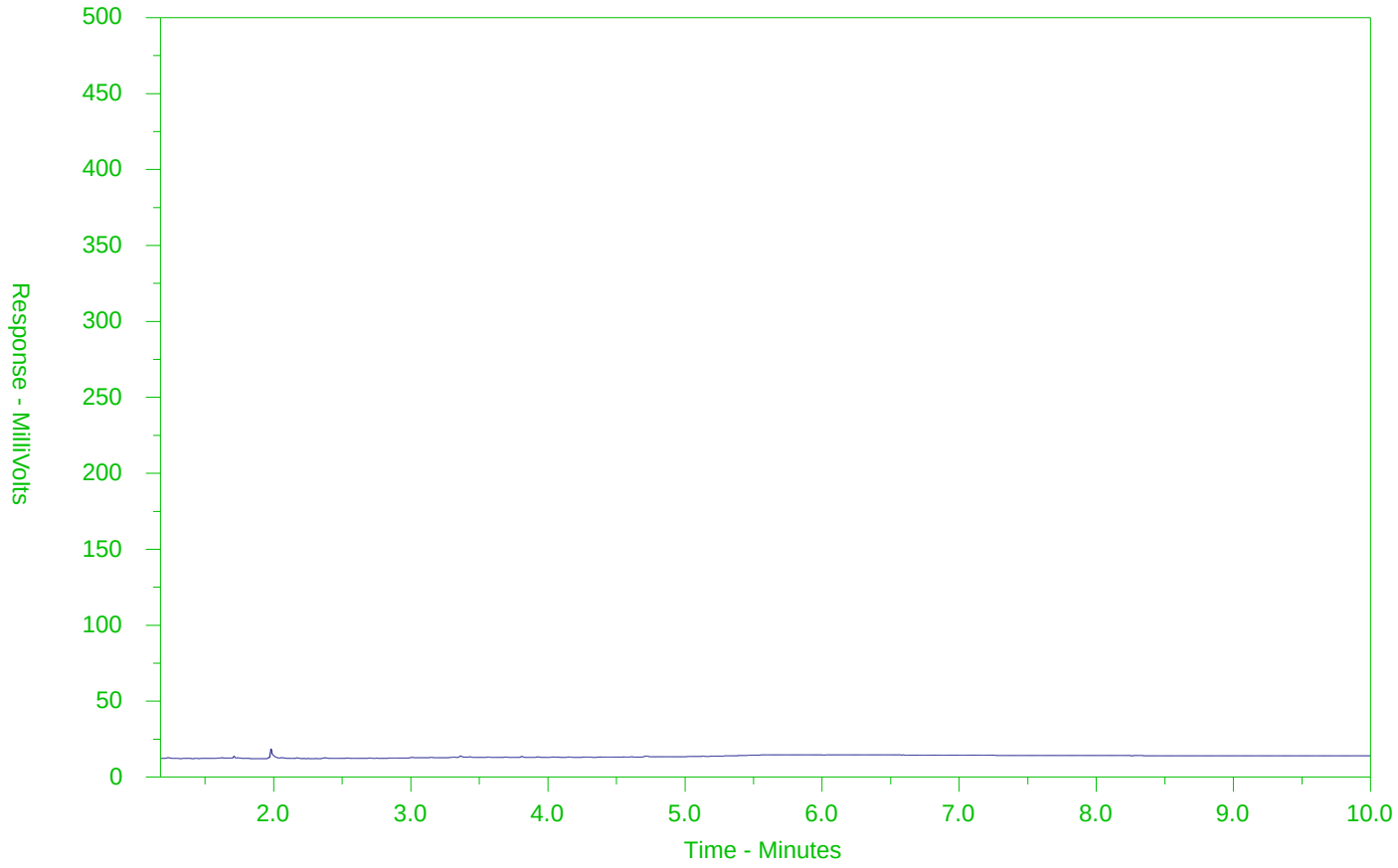
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2654664-3
Client Sample ID: 21-3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

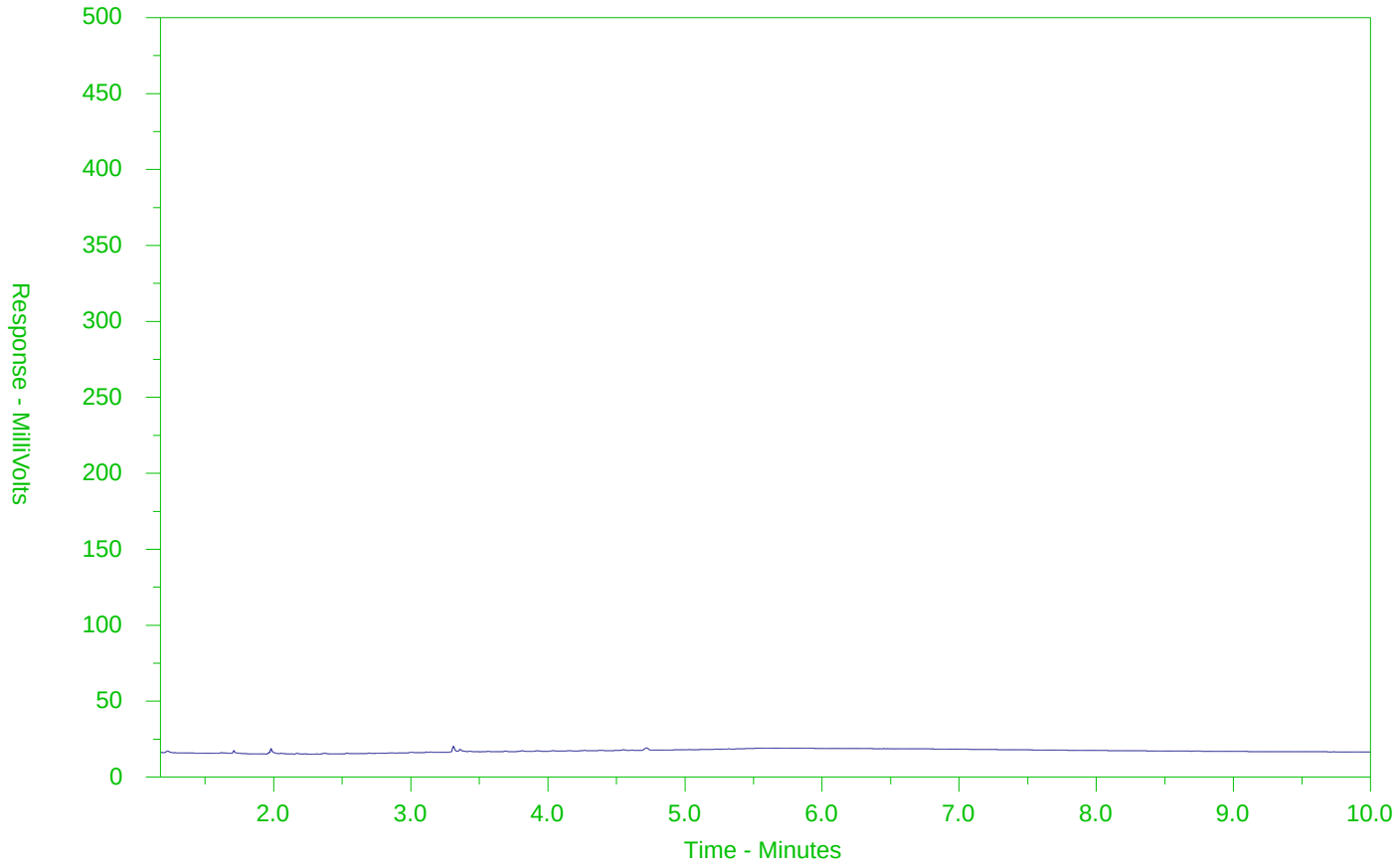
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2654664-4
Client Sample ID: 21-3D



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

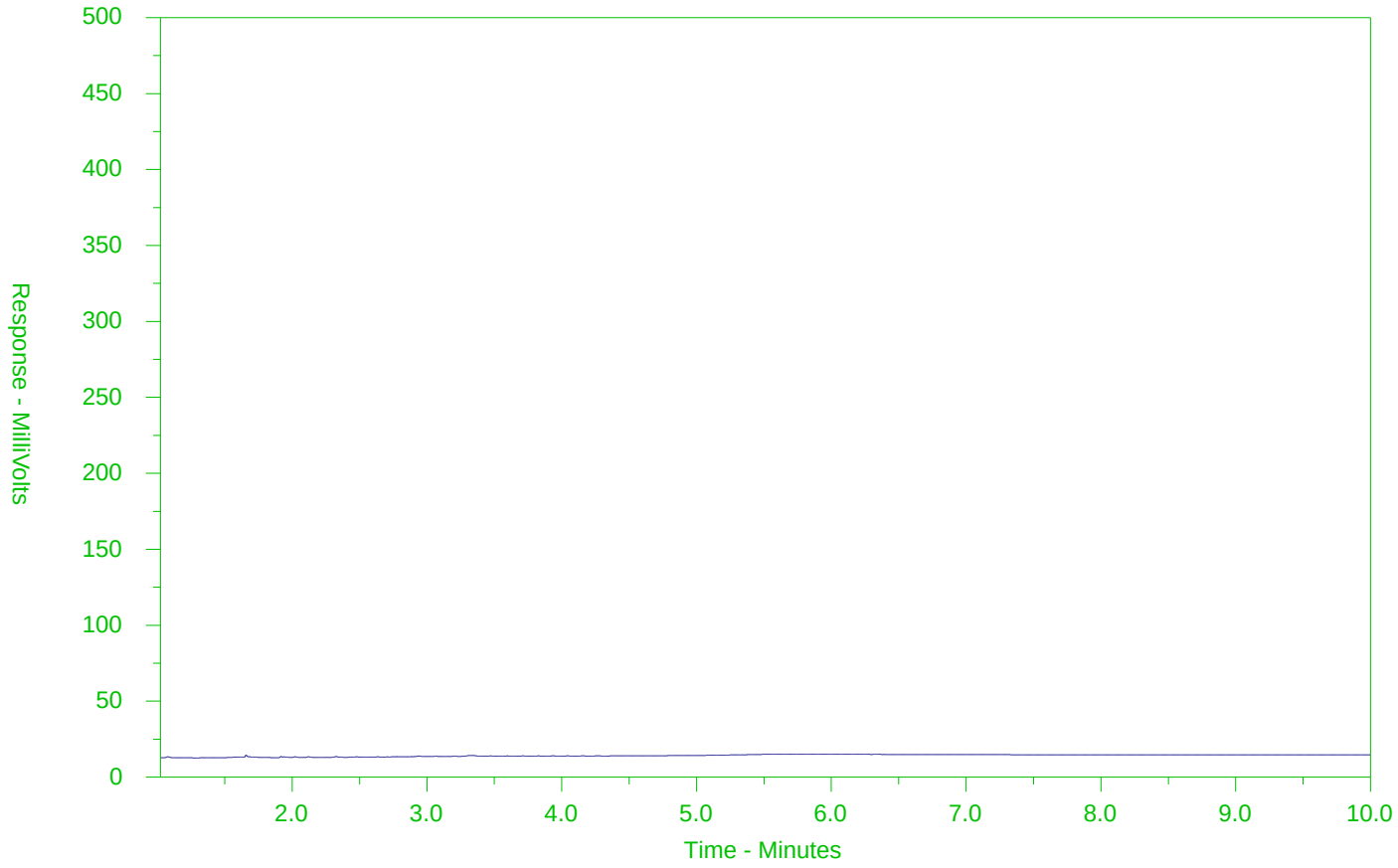
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2654664-5
Client Sample ID: 21-4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

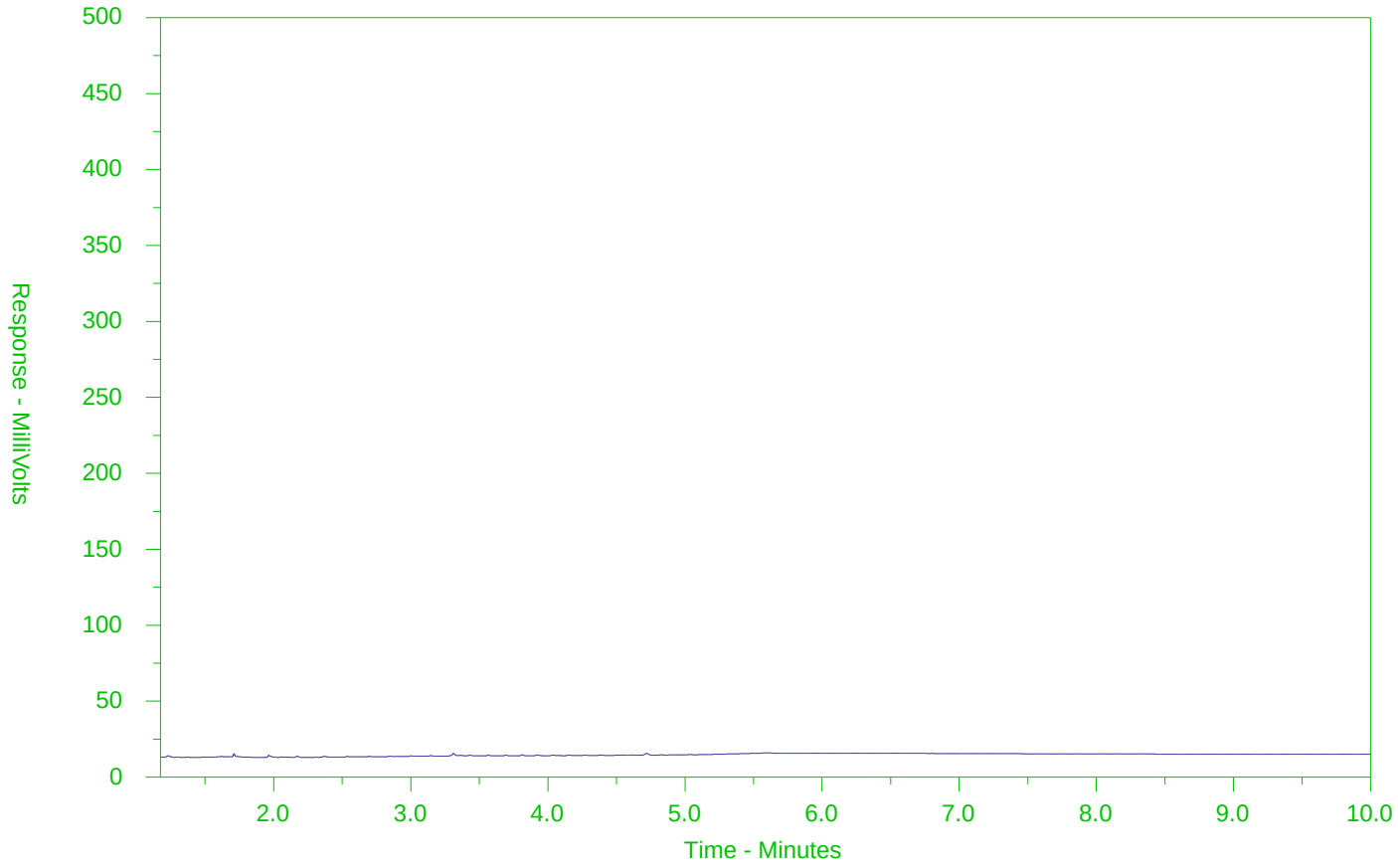
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2654664-6
Client Sample ID: 21-2D



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

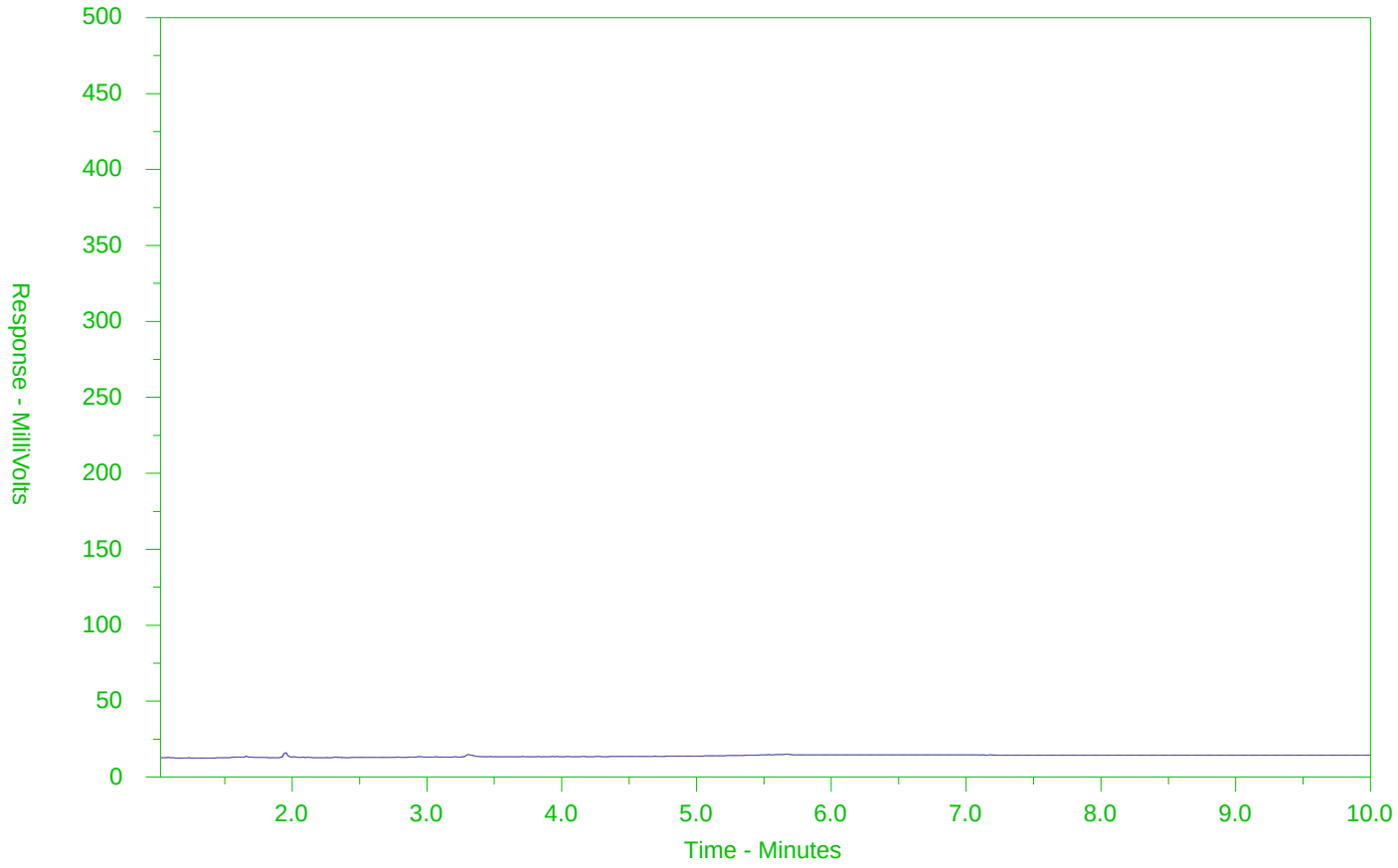
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2654664-7
Client Sample ID: 21-5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Page 1 of 1

MC

www.alsglobal.com

L2654664-COFC

ia Toll Free: 1 800 668 9878

Report To	Contact and company name below	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Palmer Environmental Consulting Group Inc.	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Chloe Stephenson	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	289-921-1336	☑ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	74 Berkeley Street	Email 1 or Fax chloe.stephenson@pecg.ca	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	Toronto, ON	Email 2 sarah.sipak@pecg.ca	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests
Postal Code:	M5A 2W7	Email 3 sylvia.babiarz@pecg.ca	AFFIX ALS BARCODE LABEL HERE (ALS use only)
Invoice To	Same as Report To ☐ YES ☑ NO	**Invoice Recipients**	Date and Time Required for all E&P TATs: 29-Oct-21 5pm
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please contact your AM to confirm availability.
Company:	Palmer Environmental Consulting Group Inc.	Email 1 or Fax accounting@pecg.ca	
Contact:	Accounting	Email 2 sarah.sipak@pecg.ca	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	24400/Q78950	AFE/Cost Center:	PO#
Job #:	1901204	Major/Minor Code:	Routing Code:
PO / AFE:	1901204	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):	L2654664	ALS Contact: J Barkshire	Sampler: CS

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	PHC/BTEX	ICPMS Metals F	PHC/VOC	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	21-1	22-Oct-21		GW	5	X	X					
	21-2				4			X				
	21-3				5	X	X					
	21-~~4~~3D				5	X	X					
	21-~~5~~4		10:30		5	X	X					
	21-~~4~~5D				4			X				
	21-5		11:15		5	X	X					
	TRIP BLANK				2				X			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Table 3 RPI
Are samples for human consumption/ use? ☐ YES ☑ NO	All Metals Field Filtered.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☑ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
14.5°C				15.8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: Oct-22-21	Time:	Received by: Arran Punton	Date: 22-OCT-2021	Time: 14:00	Received by: LR	Date: 10/22/21	Time: 19:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

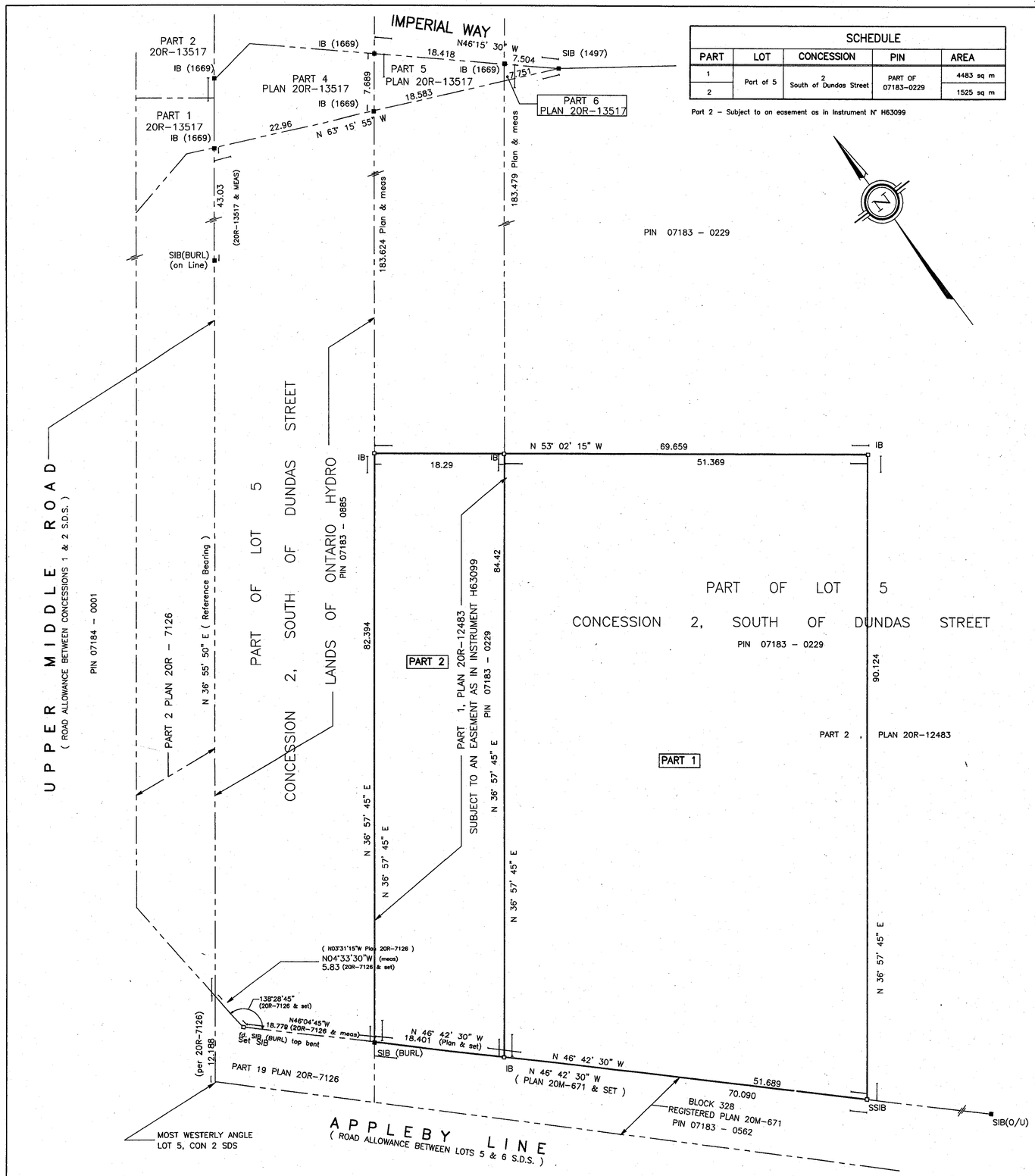
WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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

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

Appendix A – General
A4 – Survey of Phase Two



SCHEDULE				
PART	LOT	CONCESSION	PIN	AREA
1	Part of 5	2 South of Dundas Street	PART OF 07183-0229	4483 sq m
2				1525 sq m

Part 2 – Subject to an easement as in Instrument N° H63099

I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE LAND TITLES ACT

DATE JUNE 18, 2002

K.D. WILKINSON
ONTARIO LAND SURVEYOR

PLAN 20R-14677 AT

RECEIVED AND DEPOSITED

DATE June 21, 2002

"Angela Timbers" AD
LAND REGISTRAR FOR THE LAND TITLES DIVISION OF HALTON (N° 20)

PLAN OF SURVEY OF

PART OF LOT 5
CONCESSION 2
SOUTH OF DUNDAS STREET

(GEOGRAPHICAL TOWNSHIP OF NELSON)

CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

CLARKE & WILKINSON SURVEYING LTD.

SCALE 1 : 300

0 5 10 15 30m

NOTES

Bearings shown hereon are astronomic and are referred to the southeasterly limit of Upper Middle Road as shown on Plan 20R-13517 having a bearing of N 36° 55' 50" E

Survey Monuments Found shown thus ■
Survey Monuments Planted shown thus ○

S.S.I.B. – denotes Short Standard Iron Bars
S.I.B. – denotes Standard Iron Bars
I.B. – denotes Iron Bars
I.P. – denotes Iron Pipes
CC – denotes Cut Cross
O/U – denotes Origin Unknown
S.D.S. – denotes South of Dundas Street
1669 – denotes W.T. Pearce O.L.S.
BURL – denotes City of Burlington – Surveys
plan – denotes Plan 20R-12483
wit – denotes Witness

CONVERSION NOTE :
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SURVEYOR'S CERTIFICATE

I CERTIFY THAT

1) This survey and plan are correct and in accordance with the Surveys Act, the Surveyor's Act and the Land Titles Act and the regulations made under them.

2) The survey was completed on the 14th day of May 2002

June 18, 2002
Date

K.D. Wilkinson
Ontario Land Surveyor

CLARKE & WILKINSON SURVEYING LTD.
ONTARIO LAND SURVEYORS
3-1682A VICTORIA PARK AVENUE
TORONTO, ONTARIO , M1R 1P7
(416) 750 – 3018

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