Phase Two Environmental Site Assessment

5150 Ninth Line

Mississauga, Ontario

Prepared For:

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1.0 Executive Summary

DS Consultants Ltd. (DS) was retained by Mattamy (5150 Ninth Line) Limited (the "Client") to conduct a Phase Two Environmental Site Assessment (ESA) of the Property located at 5150 Ninth Line, Mississauga, Ontario, herein referred to as the "Phase Two Property" or "Property". The Phase Two Property is a 4.88-hectare (12.05 acres) parcel of land situated within a mixed residential, commercial, agricultural neighbourhood on the western boundary of the City of Mississauga, Ontario. The Phase Two Property is located approximately 500 m northwest of the intersection of Ninth Line and Eglinton Ave West.

The Property is currently developed with a two (2)-storey residential building with one level of basement (Site Building A), and a one and a half (1 ½)-storey shed (Site Building B), located on the north side of Site Building A. A small storage shed is located on the west side of Site Building A. The Property also contains a one-storey barn with a storage shed (Site Building C). A cell tower is located in the northwestern portion of the Phase Two Property. It should be noted that the northern half of the Phase Two Property was formerly part of the property known as 5170 Ninth Line. The residential structure and veterinary clinic now associated with 5170 Ninth Line are not part of the Phase Two Property.

It is DS' understanding that redevelopment of the Property for residential purposes has been proposed. Due to the use of a portion of the property for commercial purposes (cell tower), it is the opinion of DS that the intended future property use (residential) constitutes a more sensitive property use, as defined under O.Reg. 153/04 (as amended). Given that the proposed change in property use is to a more sensitive property use, the filing of a Record of Site Condition (RSC) with the Ontario Ministry of Environment, Conservation and Parks (MECP) will be mandated under O.Reg. 153/04 (as amended).DS understands that this Phase Two ESA may be used to support the filing of a Record of Site Condition (RSC) as part of the proposed redevelopment of the Phase Two Property for residential purposes.

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase Two ESA as described in Ontario Regulation 153/04 (as amended). The objective of this Phase Two ESA is to confirm whether contaminants are present, and at what concentration are they present on the Phase Two Property, as related to the Areas of Potential Environmental Concern (APEC) identified in the Phase One ESA.

A Phase II ESA was previously conducted on the northern half of the Property by others in 2017. The investigation involved the advancement of three boreholes to a maximum depth of 8.2 mbgs, and the advancement of four shallow test pits. Two of the boreholes were completed as monitoring wells.

Select soil samples were submitted for analysis of PHCs (F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX), volatile organic compounds (VOCs), OC Pesticides, and metals and inorganics. Groundwater samples were collected from two monitoring wells and analyzed for PHCs (F1-F4), BTEX and VOCs. The results of the Phase II ESA indicated that PHC F2 impacts were identified in soil collected from borehole BH4 at an approximate depth of 0.8 to 1.4 mbgs. All of the groundwater samples analysed met the MECP Table 3 SCS.

A geotechnical investigation was conducted on the southern half of the Property by others in 2017, involving the advancement of four boreholes on the Property. One of the boreholes (BH9) was completed as a monitoring well. BH9 was utilized by DS as part of this investigation to determine the groundwater elevation in the western portion of the Property.

The Phase One ESA completed in February 2019 by DS indicated that the Phase Two Property was first developed for residential purposes and has been used for residential, agricultural, and commercial purposes. A total of five (5) Potentially Contaminating Activities (PCAs) were identified in the Phase One ESA, which were considered to be contributing to five (5) APECs on the Phase Two Property. A summary of the APECs, associated PCAs, and contaminants of potential concern (COPC) identified is presented in the table below:

Table 1-1: Summary of APECs

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	Vicinity of AST.	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks - aboveground fuel storage tank located inside the storage shed on the west side of Site Building A.	On Site	PHCs, VOCs, Metals	Soil, Groundwater
APEC-2	Entire Phase One Property.	PCA-30: Importation of Fill Material of Unknown Quantity.	On Site	PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-3	Entire Phase One Property.	PCA-40: Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications.	On Site	OC Pesticides, metals	Soil
APEC-4	Vicinity of former borehole MW4	PCA N/S: Shallow PHC impacts in soil identified in the 2017 Phase II ESA conducted by SPCL.	On Site	PHCs	Soil
APEC-5	Entire Phase One Property.	PCA N/S: Inferred use of pesticides on historical orchard.	On Site	OC Pesticides, metals	Soil

Based on the findings of the Phase One ESA it was concluded that a Phase Two ESA is warranted in order to assess the soil and groundwater conditions on the Phase Two Property and to supplement the previous environmental investigation work previously completed by others in 2017.

The Phase Two ESA involved the advancement of ten (10) boreholes, which was completed between January 23, 2019 and January 24, 2019. The boreholes were advanced to a maximum depth of 11.3 metres below ground surface (mbgs) under the supervision of DS personnel. Five (5) of the boreholes were advanced in the vicinity of borehole BH4 (completed in 2017), for the purpose of determining the vertical and horizontal extent of the PHC impacts previously identified in soil at the location of BH4. The remaining boreholes were completed in order to investigate the APECs associated with the AST located near Site Building A, potential presence of fill material, historical orchard, and historical agricultural activity. Groundwater monitoring wells were installed in two (2) of the boreholes to facilitate the collection of groundwater samples and the assessment of groundwater flow direction.

All APECs were investigated with boreholes and/or monitoring wells in accordance with the requirements of O.Reg. 153/04 (as amended). Soil and groundwater samples were collected and submitted for analysis of all COPCs, including: PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs, OC Pesticides.

The soil and groundwater analytical results were compared to the "Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition." provided in the MECP document entitled, "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*" dated April 15, 2011 *(*Table 2 SCS*)* for coarse-textured soils and residential/parkland/institutional (RPI) property use.

Based on the findings of the Phase Two ESA, DS presents the following findings:

- Boreholes drilled on the Property encountered 150 to 200mm of topsoil. Fill material was not identified in any of the boreholes advanced under the supervision of DS on the Property. Below the topsoil, upper reworked native soils consisting of clayey silt, underlain by sandy silt/silty sand and sandy silt till deposits were encountered, extending to depths varying from 2.3 to 5.0 m. Below the sandy silt till layer, a cohesive, water bearing clayey silt till layer was encountered extending to depths varying from 8.4 to 11.2m. Shale bedrock was not encountered in any boreholes on the Phase Two Property.
- The depth to groundwater was measured in three (3) monitoring wells during the course of this investigation (MW19-1 and MW19-4 installed under supervision of DS, and BH9 installed by others in 2017). The monitoring wells were screened to intercept the groundwater water table located within the clayey silt till unit. The groundwater levels were found to range between 6.14 to 6.47 mbgs with corresponding elevations of 187.6 to 184.0 metres above sea level (masl). Based on the groundwater elevations recorded, the groundwater flow direction appears to be northeast. It is possible that the groundwater levels may vary seasonally. The groundwater flow direction can only be confirmed through long term monitoring.
- The results of the chemical analyses indicated that all of the soil samples analysed met the MECP Table 2 Standards. The PHC impacts previous identified at BH4 appear to be localized within a 3m radius and extend to a maximum depth of 1.5 mbgs.
- Groundwater samples were collected from monitoring wells MW19-1 and MW19-4 and submitted for analysis of Metals, PHCs and VOCs. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

The impacted soils near BH4 were remediated on April 5, 2019 through the excavation and off-site disposal at a licensed MECP receiving facility. The excavation was conducted by Terrain Group under the supervision of DS personnel. Approximately seventy-two cubic metres of soil was excavated and removed from the Property in order to reduce the

contaminant concentrations present to levels below the MECP Table 2 SCS. Verification sampling was conducted on April 5, 2019, the results of which indicated that the remaining soils on-site met the applicable MECP SCS.

Based on a review of the findings of this Phase Two ESA, DS presents the following conclusions and recommendations:

- Fill material was not identified in the boreholes advanced by DS. Weathered/disturbed native material was encountered below the topsoil. It is the opinion of DS that the fill material described in the previous 2017 geotechnical investigation does not appear to be imported fill material.
- The previously identified PHC impacts in soil have been successfully remediated. The remaining soils on-site meet the applicable MECP Table 2 RPI SCS.
- The results of the groundwater chemical analyses conducted indicated that all samples analyzed met the Table 2 SCS.
- All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

The results of this Phase Two ESA indicate that as of the Certification Date of April 5, 2019, the site condition standards applicable to the Site have been met. No further work is warranted at this time. A Record of Site Condition may be filed based on the findings of this investigation.

2.0 Introduction

DS Consultants Ltd. (DS) was retained by Mattamy (5150 Ninth Line) Limited to complete a Phase Two Environmental Site Assessment (ESA) of the Property located at 5150 Ninth Line, Mississauga, Ontario, herein referred to as the "Phase Two Property" or "Property". It is DS's understanding that this Phase Two ESA has been requested for due diligence purposes in association with the proposed redevelopment of the Property for residential purposes. DS understands that this Phase Two ESA may be used to support the filing of a Record of Site Condition (RSC) as part of the proposed redevelopment of the Property.

Due to the use of a portion of the property for commercial purposes (cell tower), it is the opinion of DS that the intended future property use (residential) constitutes a more sensitive property use, as defined under O.Reg. 153/04 (as amended). Given that the proposed change in property use is to a more sensitive property use, the filing of a Record of Site Condition (RSC) with the Ontario Ministry of Environment, Conservation and Parks (MECP) will be mandated under O.Reg. 153/04 (as amended).

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase One ESA as described in Ontario Regulation 153/04 (as amended). The objective of this Phase Two ESA is to confirm whether contaminants are present, and at what concentration are they present on the Phase Two Property, as related to the Areas of Potential Environmental Concern (APEC) identified in the Phase One ESA.

2.1 Site Description

The Phase Two Property is a 4.88-hectare (12.05 acres) parcel of land situated within a mixed residential, commercial, agricultural neighbourhood on the western boundary of the City of Mississauga, Ontario. The Phase Two Property is located approximately 500 m northwest of the intersection of Ninth Line and Eglinton Ave West. A Site Location Plan is provided in Figure 1.

For the purposes of this report, Eglinton Avenue West is assumed to be aligned in an east-west orientation, and Ninth Line in a north-south orientation. A Plan of Survey for the Phase Two Property dated June 14, 2018 and prepared by J.D. Barnes Limited, an Ontario Land Surveyor, has been provided under Appendix A.

The Property is currently developed with a two (2)-storey residential building with one level of basement (Site Building A), and a one and a half (1 ½)-storey shed (Site Building B), located on the north side of Site Building A. A small storage shed is located on the west side of Site Building A. The Property also contains a one-storey barn with a storage shed (Site Building C). A cell tower is located in the northwestern portion of the Phase Two Property. It should be noted that the northern half of the Phase Two Property was formerly part of the property known as 5170 Ninth Line. The residential structure and veterinary clinic now associated with 5170 Ninth Line are not part of the Phase Two Property. A Site Plan depicting the orientation of the buildings on-site is provided in Figure 2.

Additional details regarding the Phase Two Property are provided in the table below.

Table 2-1:Phase Two Property Information

Criteria	Information	Source
Legal Description	Part Lot 1, Concession 9 Trafalgar New Survey, as in 367648, Except PE167; City of Mississauga Part Lot 1 Con 9 Trafalgar New Survey as in 538791 except PE166 & Pt2, 20R14775.; City of Mississauga	Legal Survey
Property Identification Number (PIN)	24931-0106 (LT) & 24931-0150 (LT)	Legal Survey
Property Owner	Mattamy (5150 Ninth Line) Limited	Client
Site Area	4.88-hectares (12.05acres)	City of Mississauga

2.2 Property Ownership

The ownership details for the Phase Two Property are provided in the table below.

Table 2-2: Phase Two Property Ownership

Property Owner	Address	Contact
Mattamy (5150 Ninth Line) Limited	5150 Ninth Line, Mississauga, Ontario	Eric Mueller Eric.Mueller@mattamycorp.com

2.3 Current and Proposed Future Use

The Phase Two Property is currently used for residential and commercial (cell tower) purposes. It is DS' understanding that the proposed redevelopment will include the construction of a residential subdivision on the Property.

2.4 Applicable Site Condition Standards

The applicable Site Condition Standards (SCS) for the Phase Two Property are considered by the Qualified Person (QP) to be the Table 2 SCS: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Use with coarse-textured soils as contained in the April 15, 2011 Ontario Ontario Ministry of Environment, Conservation and Parks (MECP) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", herein referred to as the "Table 2 SCS".

The selection of the Table 2 SCS is considered appropriate based on the following rationale:

- The City of Mississauga obtains its potable water from Lake Ontario, and does not rely on groundwater as a potable water source; however, it is possible that potable wells are present on properties within 500 m of the Phase Two Property;
- The Site is note considered to be environmentally sensitive, as defined under O.Reg. 153/04 (as amended);
- The proposed future use of the Phase Two Property will be residential;
- The Site is not located within 30 m of a water body;
- The pH of the soils analyzed during this Phase Two ESA are within the accepted range specified under O.Reg. 153/04 (as amended); and
- Bedrock was not encountered within 2 metres of the ground surface

3.0 Background Information

3.1 Physical Setting

3.1.1 Water Bodies and Areas of Natural Significance

The Natural Heritage Areas database published by the Ministry of Natural Resources and Forestry (MNRF) was reviewed in order to identify the presence/absence of areas of natural significance including provincial parks, conservation reserves, areas of natural and scientific interest, wetlands, environmentally significant areas, habitats of threatened or endangered species, and wilderness areas. The City of Mississauga Official Plan and Peel Region Official Plans were reviewed to determine if portions of the Phase One Property or properties within the Phase One Study Area are designed as areas of natural significance. The Phase One Property includes no Areas of Natural Significance. The records reviewed indicated that the Henslow's Sparrow is listed as endangered within 1 km of the site. It should be noted that the MNRF database only covers the southeast corner of the Phase One Property, while the rest of the Site has not yet been surveyed by the MNRF.

According to the MNRF, the Henslow's Sparrow tend to avoid fields that have been grazed or are crowded with trees and shrubs. It has been found in abandoned farm fields, pastures and meadows, as well as dense tall grassland. If required, an environmental specialist could be retained to undertake a site-specific ecological assessment, however at this time further assessment is not warranted.

3.1.2 Topography and Surface Water Draining Features

The Phase Two Property is located in a mixed urban and rural setting, at an elevation of 190 metres above sea level (masl). The topography within the Phase Two Study Area generally slopes to the southeast, towards Sawmill Creek, located approximately 340 m southeast of the Phase Two Property. The neighbouring property are generally at a similar elevation, and the topography in the vicinity of the Phase Two Property generally slopes to the southeast. There are drainage features (e.g. ditches, swales, etc.) present on-site on the eastern side of the Phase Two Property, on the east side of Site Building A, running parallel to Ninth Line Surface water flow associated with precipitation events is anticipated to run overland and drain into the municipal storm sewer catch basins.

3.2 Past Investigations

3.2.1 Previous Report Summary

DS reviewed the following environmental report prepared for the Property. The reports were provided by the client to DS.

- *"Preliminary Report on Geotechnical Investigation, Proposed Residential Development, 5150 Ninth Line, Mississauga, Ontario",* prepared for Mattamy Homes, prepared by Sirati & Partners Consultants Ltd. (SPCL), dated February 15, 2017*; and*
- *"Preliminary Report on Geotechnical Investigation, Proposed Residential Development, 5170 Ninth Line, Mississauga, Ontario",* prepared for Mattamy Homes, prepared by Sirati & Partners Consultants Ltd., dated July 20, 2017*; and*
- *"Phase I Environmental Site Assessment, 5170 Ninth Line, Mississauga, Ontario",* prepared for Mattamy Homes, prepared by Sirati & Partners Consultants Ltd., dated July 25, 2017; *and*
- *"Phase Two Environmental Site Assessment, 5170 Ninth Line, Mississauga, Ontario",* prepared for Mattamy Homes, prepared by Sirati & Partners Consultants Ltd., dated July 26, 2017; *and*
- *"Phase One Environmental Site Assessment, Proposed New Development, 5150 Ninth Line, Mississauga, Ontario",* prepared for Mattamy Homes, prepared by Sirati & Partners Consultants Ltd., dated June 29, 2018;
- *"Phase One Environmental Site Assessment, 5150 Ninth Line, Mississauga, Ontario",* prepared for Mattamy (5150 Ninth Line) Limited, prepared by DS Consultants Ltd., dated February 11, 2019.

These reports were reviewed in order to assess for the presence of known or suspected PCAs and APECs, and to determine if there are known soil and/or groundwater impacts on the Phase One Property or on Properties within the Phase One Study Area.

Based on the information reviewed by DS, the location of the Phase One Property, and the proposed future land use (residential), the most applicable Site Condition Standards as defined by the Ministry of the Environment, Conservation, and Parks (formerly MECP) in the document " Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*", dated April 15, 2011 are considered to be:

- Table 2 SCS: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Use with coarse-textured soils.

The analytical date provided in the previous reports were compared to the Table 2 SCS in order to assess whether there are known areas of impacted soil and/or groundwater on the Phase One Property. A summary of the pertinent details of the reports reviewed is provided below:

SPCL Preliminary Geotechnical Investigation, 5150 Ninth Line, February 15, 2017

The geotechnical investigation was conducted to determine the subsurface conditions at the four borehole locations, and to comment on foundation conditions for general house construction. The following pertinent information was noted by DS:

- The ground surface of the property generally slopes to the southeast, with geodetic elevations from 194.0 to 191.1m.
- A surficial layer of topsoil 200-300 mm in thickness was encountered in all borehole locations.
- Fill material consisting of sandy silt, silty sand, and clayey silt was identified in the boreholes at depths ranging from 0.9 to 2.3m.
- Native soil consisting of silty clay till was encountered in the boreholes to a maximum depth of 9.7mbgs.
- One borehole was installed with a monitoring well.
- The groundwater level found on February 8, 2017 in the monitoring well was at a depth of 6.8m.

SPCL Preliminary Geotechnical Investigation, 5170 Ninth Line, July 20, 2017

The geotechnical investigation was conducted to determine the subsurface conditions at the borehole locations, and to comment on foundation conditions for general house construction. The following pertinent information was noted by DS:

- A surficial layer of topsoil 300-350 mm in thickness was encountered in all borehole locations with the exception of BH1.
- Fill material consisting of clayey silt, sand, and sand & gravel was identified in the boreholes, extending to depths ranging from 0.8 to 1.1m.
- Native soil consisting of silty clay till was encountered in the boreholes to a maximum depth of 8.2mbgs.
- Two boreholes were installed with monitoring wells.
- The groundwater levels found on July 11, 2017 were at depths of 6.8 and 7.3m respectively.

SPCL Phase I Environmental Site Assessment, 5170 Ninth Line, July 25, 2017

The Phase I Environmental Site Assessment, 5170 Ninth Line, Mississauga, Ontario was reported to have been conducted in general accordance with Ontario Regulation 153/04, dated April 15, 2011 (as amended), and included a review of readily available historical records and reasonably ascertainable regulatory information, a Site Reconnaissance, interviews, evaluation of information, and reporting. The following pertinent information was noted by DS:

- The first developed use for the property was for residential purposes in the early 1980's.
- The residential building present on the Property is currently heated by a natural gas furnace. According to the property owner, electrical heaters were used in the residential building in the past.
- Based on the age of the residential building, which was constructed in the early-1980s, there is a potential for designated substances materials such as lead, asbestos-containing construction materials, etc. to be present in the building materials. A designated substance survey of the building was recommended prior to the demolition process.
- Historic and current use of the Property for agricultural purposes was identified.
- Storage of jerry cans, motor oil jugs, and paint pails in the garage was identified.
- The Phase One Property is adjacent to Highway 407 and Ninth Line.

It should be noted that the residential structure and the veterinary clinic are not a part of the Phase Two Property.

Sirati and Partners Ltd. Phase II Environmental Site Assessment, 5170 Ninth Line, July 26, 2017

The Phase II Environmental Site Assessment, 5170 Ninth Line, Mississauga, Ontario was reported to have been conducted in general accordance with Ontario Regulation 153/04, dated April 15, 2011 (as amended), The investigation involved the advancement of three boreholes to a maximum depth of 8.2 mbgs. Two of the boreholes were completed as monitoring wells. The soil conditions encountered generally consisted of 1.1 m of fill material comprised of sand and gravel over clayey silt. The native material underlaying the fill consisted of silty clay till and extended to the maximum explored depths of the boreholes. All boreholes terminated in native soil; bedrock was not encountered in any of the boreholes.

Select soil samples were submitted for analysis of PHCs (F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX), volatile organic compounds (VOCs), OC Pesticides, and

metals and inorganics. Groundwater samples were collected from two monitoring wells and analyzed for PHCs (F1-F4), BTEX and VOCs. The results of the chemical analyses indicated the following exceedances of the Table 2 SCS for soil in the vicinity of the cell tower:

Table 3-1: Summary of Impacts Previously Identified in Soil

Sample ID	Sample Depth (mbgs)	Parameter	Table 2 Criteria	Result
BH18-4 SS2	0.8-1.4	PHC F2	98 µg/g	**150 µg/g**

The results of the chemical analyses indicated that all samples met the Table 2 SCS for groundwater.

Remediation of the PHC impacted soil was recommended in order to meet the applicable Table 2 RPI Standards for the Property.

Sirati and Partners Ltd. Phase I Environmental Site Assessment, 5150 Ninth Line, June 29, 2018

The Phase I Environmental Site Assessment for 5150 Ninth Line, Mississauga, Ontario was reported to have been conducted in general accordance with Ontario Regulation 153/04, dated April 15, 2011 (as amended), and included a review of readily available historical records and reasonably ascertainable regulatory information, a Site Reconnaissance, interviews, evaluation of information, and reporting. The following pertinent information was noted by DS:

- The property has historically been used for residential and agricultural purposes.
- Possible use of fill material on the property was identified.
- One (1) aboveground fuel storage tank (AST) was identified inside of the storage shed located on the west side of the Site Building A.

DS Consultants Ltd. Phase One Environmental Site Assessment, 5150 Ninth Line, February 11, 2019

The DS Consultants Ltd. Phase One Environmental Site Assessment, 5150 Ninth Line, Mississauga, Ontario, was completed to satisfy the intent of the requirements, methodology and practices for a Phase One ESA as described in Ontario Regulation 153/04 (as amended).

The following pertinent information was noted by DS:

- The Property has been historically used for agricultural, residential, and commercial purposes.
- The Phase One Property is currently used for agricultural, residential, and commercial purposes (cell tower).

- Five (5) PCAs were identified on the Phase One Property which are considered to be contributing to five (5) APECs in, on, or under the Phase One Property.

Based on the findings of the Phase One ESA it was concluded that a Phase Two ESA would be required in order to investigate the APECs identified.

Additional details are provided in Section 4.3

3.2.2 Use of Previous Analytical Results

The soil and groundwater data obtained from the 2017 Phase II ESA is considered to be of adequate quality, and therefore has been used in order to assess if soil and groundwater impacts are present on the Property relative to the APECs identified in the Phase One ESA conducted by DS in February 2019. No issues related to data quality were identified, furthermore the sampling methodology and quality assurance/quality control (QA/QC) procedures were in accordance with O.Reg. 153/04 (as amended). The samples documented in the 2017 Phase II ESA report were collected within the last two (2) years, and as such are considered to be representative of the current conditions for the purposes of this report. A summary of the previous laboratory data has been appended to this report.

4.0 Scope of the Investigation

The scope of the Phase Two ESA was designed to investigate the portions of the Site determined in the Phase One ESA to be Areas of Potential Environmental Concern. This Phase Two ESA was conducted in general accordance with O.Reg. 153/04 (as amended). The scope of the investigation including the subsurface soil and groundwater investigation, sampling, and laboratory analysis was based on the findings of the Phase One ESA and was limited to the portions of the site which were accessible.

4.1 Overview of Site Investigation

The following tasks were completed as part of the Phase Two ESA:

- Preparation of a Health and Safety Plan to ensure that all work was executed safely;
- Clearance of public private underground utility services prior to commencement of subsurface investigative operations;
- Preparation of a Sampling and Analysis Plan (SAP);
- Retained a MECP licenced driller to advance a total of ten (10) boreholes on the Phase Two Property, to depths ranging between 2.3 to 10.6 mbgs. Two (2) of the boreholes were instrumented with groundwater monitoring wells upon completion. One (1) additional monitoring well from the previous Phase II ESA conducted by others was

utilized for groundwater monitoring purposes. The soil lithology was logged during drilling, and representative soil samples were collected at regular intervals. The soil samples were screened for organic vapours using a RKI Eagle 2 MultiGas Detector, and examined for visual and olfactory indications of soil impacts;

- Submitted "worst case" soil samples collected from the boreholes for laboratory analysis of relevant contaminants of potential concern (COPCs) as identified in the Phase One ESA;
- Conducted groundwater level measurements in the recently installed monitoring wells and existing wells installed in 2017 by others in order to determine the groundwater elevation, and to establish the local groundwater flow direction;
- Surveyed all monitoring wells to a geodetic benchmark;
- Developed and purged monitoring wells MW19-1 and MW19-4 prior to sampling. Groundwater samples were collected for all COPCs identified in the Phase One ESA;
- Compared all soil and groundwater analytical data to the applicable MECP SCS; and
- Prepared a Phase Two ESA Report in general accordance with O.Reg. 153/04 (as amended).

4.2 Media Investigated

4.2.1 Rationale for Inclusion or Exclusion of Media

Table 4-1: Rationale of Sampling Media

Media	Included or Excluded	Rationale
Soil	Included	Soil was identified as a media of potential and confirmed impact in the Phase One ESA, based on the historical operations and investigations conducted on-the Property.
Groundwater	Included	Groundwater was identified as a media of potential impact in the Phase One ESA, based on the historical operations conducted on-the Property.
Sediment	Excluded	Sediment is not present on the Phase Two Property.
Surface Water	Excluded	Surface water is not present on the Phase Two Property.

4.2.2 Overview of Field Investigation of Media

Table 4-2: Field Investigation of Media

Media	Methodology of Investigation
Soil	A total of ten (10) boreholes were advanced on the Phase Two Property, to a maximum depth of 11.3 mbgs. Soil samples were collected and submitted for analysis of all relevant COPCs.
Groundwater	Two (2) monitoring wells were installed on the Phase Two Property at the time of this investigation. One (1) previously installed monitoring well was utilized for groundwater monitoring purposes. Representative groundwater samples were collected from monitoring wells MW19-1 and MW19-4 and submitted for analysis of all relevant COPCs.

4.3 Phase One Conceptual Site Model

A Conceptual Site Model was developed for the Phase One Property, located at 5150 Ninth Line, Mississauga, Ontario. The Phase One Conceptual Site Model is presented in Drawings 3A, 3B, and 4 and visually depict the following:

- Any existing buildings and structures
- Water bodies located in whole, or in part, on the Phase One Study Area
- Areas of natural significance located in whole, or in part, on the Phase One Study Area
- Water wells at the Phase One Property or within the Phase One Study Area
- Roads, including names, within the Phase One Study Area
- Uses of properties adjacent to the Phase One Property
- Areas where any PCAs have occurred, including location of any tanks
- Areas of Potential Environmental Concern

4.3.1 Potentially Contaminating Activity Affecting the Phase One Property

All PCAs identified within the Phase One Study Area are presented on Figure 3B and discussed in Section 7.2 above. The PCAs which are considered to contribute to APECs on, in or under the Phase One Property are summarized in the table below:

Table 4-3: Summary of PCAs Contributing to APECs

PCA Item.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description	Contributing to APEC (Y/N)
1	PCA-28: Gasoline and associated products storage in fixed tanks	An aboveground fuel storage tank was located inside the storage shed on the west side of Site Building A.	Yes – APEC 1
2	PCA-30: Importation of Fill Material of Unknown Quantity.	Fill material was documented in theprevious geotechnical investigations borehole logs.	Yes – APEC 2

		Topsoil was reported to have been imported for agricultural purposes.	
3	PCA-40: Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications.	Historical use of the Phase One Property for agricultural use.	Yes – APEC 3
4	PCA – N/S: Operation of Cell Tower	Shallow PHC impacts in soil were identified in the 2017 Phase II ESA conducted by SPCL in the vicinity of the cell tower.	Yes – APEC 4
5	PCA – N/S: Orchard	Inferred use of pesticides on historical orchard.	Yes – APEC 5

N/S - not specified in Table 2, Schedule D, of O.Reg. 153/04

4.3.2 Contaminants of Potential Concern

A summary of the contaminants of potential concern identified for each respective APEC is presented in Table 7-1 above. The following contaminants of potential concern were identified for the Phase One Property: PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs, and OC Pesticides.

4.3.1 Underground Utilities and Contaminant Distribution and Transport

Underground utilities can affect contaminant distribution and transport. Trenches excavated to install utility services, and the associated granular backfill may provide preferential pathways for horizontal contaminant migration in the shallow subsurface.

Plans were not available to confirm the depths of these utilities; however, they are estimated to be installed at depths ranging from 2 to 3 metres below ground surface.

The depth to groundwater at the Phase One Property is inferred to be approximately 6.8 to 7.2 metres below ground surface, therefore the utility corridors are expected to be well above the water table and would not act as preferential pathways for contaminant distribution and transport in the event that shallow subsurface contaminants exist at the Phase One Property.

4.3.2 Geological and Hydrogeological Information

The topography of the Phase One Property is generally flat and slopes to the southeast, with a surface elevation of approximately 190 metres above sea level (masl). The topography within the Phase One Study Area generally slopes to the southeast, towards Sawmill Creek, located approximately 5 km southeast of the Phase One Property. The nearest watercourse is a tributary of Sawmill Creek, located approximately 340 m southeast of the Phase One

Property. The nearest body of water is Lake Ontario, located approximately 11 km southeast of the Phase One Property. Based on a review of the MECP well records and the provided reports, the depth to groundwater in the vicinity of the Phase One Property is approximately 7 mbgs. The shallow groundwater flow direction within the Phase One Study Area is inferred to be southeast towards Lake Ontario.

The Property is situated within a till moraine physiographic region. The surficial geology within the Phase One Study area is described as clay to silt-textured till derived from glaciolacustrine deposits or shale and the bedrock is described as shale, limestone, dolostone, siltstone of the Queenston Formation. Based on a review of water well records, the bedrock in the Phase One Study Area is anticipated to be encountered at an approximate depth of 22 to 24 meters below ground surface (mbgs).

4.3.3 Uncertainty and Absence of Information

DS has relied upon information obtained from federal, provincial, municipal, and private databases, in addition to records and summaries provided by EcoLog ERIS. All information obtained was reviewed and assessed for consistency, however the conclusions drawn by DS are subject to the nature and accuracy of the records reviewed.

All reasonable inquiries were made to obtain reasonably accessible information, as mandated by O.Reg.153/04 (as amended). All responses to database requests were received prior to completion of this report, with the exception of the MECP FOI request. If the MECP FOI request produces information which may alter the conclusions of this report, an addendum will be provided to the Client. This report reflects the best judgement of DS based on the information available at the time of the investigation.

Information used in this report was evaluated based on proximity to the Phase One Property, anticipated direction of local groundwater flow, and the potential environmental impact on the Phase One Property as a result of potentially contaminating activities.

The QP has determined that the uncertainty dose not affect the validity of the Phase One ESA Conceptual Site Model or the conclusions of this report.

4.4 Deviations from Sampling and Analysis Plan

The Phase Two ESA was completed in accordance with the SAP.

4.5 Impediments

DS was granted complete access to the Phase Two Property throughout the course of the investigation. No impediments were encountered.

5.0 Investigation Method

5.1 General

The Phase Two ESA followed the methodology outlined in the following documents:

- Ontario Ministry of the Environment "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" (December 1996);
- Ontario Ministry of the Environment "Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04" (June 2011);
- Ontario Ministry of the Environment "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" (July 2011) (Analytical Protocol);

The methods used in the Phase Two ESA investigation did not differ from the associated standard operating procedures.

5.2 Drilling and Excavating

A site visit was conducted prior to drilling in order to identify the borehole locations based on the APECs identified in the Phase One ESA. The selected borehole locations are depicted on Figure 4. The borehole locations were cleared of underground public and private utility services prior to commencement of drilling. A summary of the drilling activities is provided in the table below.

Table 5-1: Summary of Drilling Activities

Parameter	Details
Drilling Contractor	Terra Firma Environmental Services
Drilling Dates	January 23-24, 2019
Drilling Equipment Used	Track-mounted CME 55
Measures taken to minimize the potential for cross contamination	Soil sampling was conducted using a 50 mm stainless steel split spoon sampler. The split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water, and then rinsed with distilled water for

Parameter	Details
	each sampling interval in order to reduce the potential for cross contamination;
Sample collection frequency	Samples were collected at a frequency of every 0.6 m per 0.8 m from the ground surface to 3.1 mbgs, followed by one sample per 1.5 m to borehole termination depth.

5.3 Soil Sampling

Soil samples were collected using a 50 mm stainless steel split spoon sampler. Discrete soil samples were collected from the split-spoon samplers by DS personnel using dedicated nitrile gloves.

A portion of each sample was placed in a resealable plastic bag for field screening, and the remaining portion was placed into laboratory supplied glass sampling jars. Samples intended for VOC and the F1 fraction of petroleum hydrocarbons analysis were collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids. All sample jars were stored in dedicated coolers with ice for storage, pending transport to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

The subsurface soil conditions were logged by DS personnel at the time of drilling and recorded on field borehole logs. The borehole logs are presented under Appendix C. Additional detail regarding the lithology encountered in the boreholes is presented under Section 6.1.

5.4 Field Screening Measurements

All retrieved soil samples were screened in the field for visual and olfactory observations. No obvious visual or olfactory evidence of potential contamination were noted. No aesthetic impacts (e.g. cinders, slag, hydrocarbon odours) were encountered during this investigation. The soil sample headspace vapour concentrations for all soil samples recovered during the investigation were screened using portable organic vapour testing equipment in accordance with the procedure outlined in the MECP's '*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario'.*

The soil samples were inspected and examined to assess soil type, ground water conditions, and possible chemical contamination by visual and olfactory observations or by organic vapour screening. Samples submitted for chemical analysis were collected from locations

judged by the assessor to be most likely to exhibit the highest concentrations of contaminants based on several factors including (i) visual or olfactory observations, (ii) sample location, depth, and soil type (iii) ground water conditions and headspace reading. A summary of the equipment used for field screening is provided below:

Table 5-2: Field Screening Equipment

Parameter	Details
Make and Model of Field Screening Instrument	Eagle 2, Model 5101-P2 Serial Number: E2G721
Chemicals the equipment can detect and associated detection limits	VOCs with dynamic range of 0 parts per million (ppm) to 2,000 ppm PHCs with range of 0 to 50, 000 ppm
Precision of the measurements	3 significant figures
Accuracy of the measurements	VOCs: ± 10% display reading + one digit Hydrocarbons: ± 5% display reading + one digit
Calibration reference standards	PID: Isobutylene CGD: Hexane
Procedures for checking calibration of equipment	In-field re-calibration of the CGI was conducted (using the gas standard in accordance with the operator's manual instructions) if the calibration check indicated that the calibration had drifted by more than +/- 10%.

A summary of the soil headspace measurements is provided in the borehole logs, provided under Appendix C.

5.5 Groundwater Monitoring Well Installation

Monitoring wells were installed upon completion of two (2) boreholes (MW19-1 and MW19-4) advanced on the Phase Two Property. The monitoring wells were constructed of 51-millimetre (2-inch) inner diameter (ID) flush-threaded schedule 40 polyvinyl chloride (PVC) risers, equipped with a 3.1 m length of No. 10 slot PVC screen. The well screens were sealed at the bottom using a threaded cap and at the top with a lockable J-plug.

Silica sand was placed around and up to 0.6m above the well screen to act as a filter pack. Bentonite was placed from the ground surface to the top of the sand pack. The wells were completed with protective flush mount casings.

Details regarding the monitoring well construction can be found in Table 1, and on the borehole logs provided in Appendix C.

Disposable nitrile gloves were used to minimize the potential for cross-contamination during well installation. Dedicated equipment was used for well development and sampling for further minimize the risk of cross contamination.

The monitoring wells were developed on January 28, 2019. In accordance with DS' SOPs for monitoring well development, the wells were developed by removing a minimum of three standing water column volumes using dedicated inertial pumps comprised of Waterra polyethylene tubing and dedicated foot valves.

5.6 Groundwater Field Measurement of Water Quality Parameters

Field measurements of water quality parameters including temperature, specific conductivity, pH, turbidity, dissolved oxygen, oxidation-reduction potential and turbidity were collected using a flow-through cell and a YSI Water Quality Meter (YSI-556™). The YSI Water Quality Meter was calibrated by the supplier (Maxim Environmental) in accordance with the manufacturer's specifications.

The measurements were conducted at regular intervals in order to determine whether stabilized geochemical conditions had been established in the monitoring well, indicating representative groundwater conditions.

The field measurements have been archived and can be provided upon request.

5.7 Groundwater Sampling

Groundwater samples were collected a minimum of 24 hours after the development of the monitoring wells.

Groundwater samples were collected a minimum of 24 hours after the development of the monitoring wells. The wells were purged using a peristaltic pump equipped with dedicated polyethylene tubing. A YSI Water Quality Meter equipped with a flow-through cell was used to monitor the geochemical conditions during purging to assess whether steady-state conditions were achieved prior to sampling.

Samples were collected upon stabilization of the water quality parameters. Groundwater samples for metals analysis were field filtered using dedicated 0.45 micro in-line filters. The groundwater was transferred directly into laboratory supplied containers and preserved as appropriate using the containers supplied by the analytical laboratory. The samples were placed in coolers upon completion of sampling and stored on ice for storage, pending transport to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

5.8 Sediment Sampling

No sediment as defined under O.Reg. 153/04 (as amended) was present on the Phase Two Property at the time of this investigation. Sediment sampling was not conducted as a result.

5.9 Analytical Testing

The soil and groundwater samples collected were submitted to Maxxam Analytics under chain of custody protocols. Maxxam is an independent laboratory accredited by the Canadian Association for Laboratory Accreditation. Maxxam conducted the analyses in accordance with the MECP document "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" dated March 9, 2004 (revised on July 1, 2011).

5.10 Residue Management Procedures

5.10.1 Soil Cuttings From Drilling and Excavations

The soil cuttings generated by the borehole drilling program were left on-site for disposal at the time of site redevelopment.

5.10.2 Water from Well Development and Purging

Excess water derived from well purging activities was stored in 20-L sealed plastic pails, and temporarily stored on site. Upon receipt of the analytical results it was determined that the purged groundwater meets the applicable Table 2 SCS. Based on this the purged groundwater was allowed to re-infiltrate adjacent to the monitoring wells.

5.10.3 Fluids from Equipment Cleaning

Excess equipment cleaning fluids were stored in 20-L sealed plastic pails and temporarily stored on site for disposal by a MECP approved waste-hauler for disposal at a MECP-approved waste management facility.

5.11 Elevation Surveying

The ground surface elevations of the boreholes/monitoring wells were surveyed using a Sokkia GCX-2 GNSS RTK receiver, referenced to geodetic benchmark 00819810082 (elevation of 185.907 masl) located near the intersection of Eglinton Avenue West and Ninth Line.

The ground surface elevations can be found on the borehole logs presented in Appendix C.

5.12 Quality Assurance and Quality Control Measures

5.12.1 Sample containers, preservation, labelling, handling and custody for samples submitted for laboratory analysis, including any deviations from the SAP

All soil and groundwater samples were stored in laboratory-supplied sample containers in accordance with the MECP Analytical Protocol. A summary of the preservatives supplied by the laboratory is provided in the table below.

Table 5-3: Summary of Sample Bottle Preservatives

Media	Parameter	Sample Container
Soil	PHCs F1 VOCs	40 mL methanol preserved glass vial with septum lid.
	PHCs F2-F4 metals and ORPs PAHs	120 mL or 250 mL unpreserved glass jar with Teflon™-lined lid.
Groundwater	PHCs F1 VOCs	40 mL glass vial with septum lid, containing sodium bisulphate preservative.
	PHCs F2-F4	250 mL amber glass bottle with sodium bisulphate preservative
	PAHs	250 mL amber glass bottle (unpreserved)
	Inorganics	500 mL high density polyethylene bottle (unpreserved)
	Metals	125 mL high density polyethylene bottle containing nitric acid preservative
	Hexavalent Chromium	125 mL high density polyethylene bottle containing ammonium sulphate/ammonium hydroxide preservative
	Mercury	125 mL glass bottle containing hydrochloric acid preservative
	Cyanide	125 mL high density polyethylene bottle containing sodium hydroxide preservative

Groundwater samples were collected using dedicated equipment for each well. Groundwater samples collected for analysis of dissolved metals, mercury and hexavalent chromium were filtered in the field using a dedicated 0.45-micron in-line filter. Each sample container was labelled with a unique sample identification, the project number, and the sampling date. All samples were placed in an ice-filled cooler upon completion of sampling and kept under refrigerated conditions until the time of delivery to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

5.12.2 Description of equipment cleaning procedures followed during all sampling

Dedicated, disposable nitrile gloves were used for each sampling event to reduce the potential for cross-contamination.

The split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water, and then rinsed with distilled water for each sampling interval in order to reduce the potential for cross contamination Dedicated equipment was used for well development and sampling for further minimize the risk of cross contamination. Non-dedicated equipment (i.e. interface probe) was cleaned before initial use and between all measurement points with a solution of Alconox™ and distilled water. The Alconox™ solution was rinsed off using distilled water.

5.12.3 Description of how the field quality control measures referred to in subsection 3 (3) were carried out

Field duplicate samples were collected at the time of sampling. In accordance with O.Reg. 153/04, one duplicate sample was analyzed per ten samples submitted for analysis. A laboratory prepared trip blank accompanied the groundwater samples during each sampling event and was submitted for laboratory analysis of VOCs.

All field screening devices (i.e. PID, CGD, YSI Water Quality Meter) were calibrated prior to use by the supplier. Calibration checks were completed, and re-calibrations were conducted as required.

5.12.4 Description of, and rational for, any deviations from the procedures set out in the quality assurance and quality control program set out in the SAP

There were no deviations from the QA/QC program described in the SAP.

6.0 Review and Evaluation

6.1 Geology

A summary of the subsurface conditions is presented below. Additional details may be found in the borehole logs appended in Appendix C.

Boreholes drilled on the Site encountered 150 to 200mm of topsoil. Fill material was not identified in any of the boreholes advanced under the supervision of DS on the Property.

Below the topsoil, upper reworked native soils consisting of clayey silt, underlain by sandy silt/silty sand and sandy silt till deposits were encountered, extending to depths varying from 2.3 to 5.0 m. Below the sandy silt till layer, a cohesive, water bearing clayey silt till layer

was encountered extending to depths varying from 8.4 to 11.2m. Shale bedrock was not encountered in any boreholes on the Phase Two Property.

Table 6-1: Summary of Geologic Units Investigated

Geologic Unit	Inferred Thickness (m)	Top Elevation (masl)	Bottom Elevation (masl)	Properties
Sandy Silt Till	4.8	190.3	187.8	Inferred low hyraulic conductivity
Clayey Silt Till	6.7	185.9	179.2	First water bearing formation.

The clayey silt till layer was found to be the first water bearing formation encountered and is considered to be an unconfined aquifer. In general, the relatively low permeability of the native soils encountered is anticipated to retard the downward migration of the potential contaminants of concern to the groundwater table on the Phase Two Property.

6.2 Ground Water Elevations and Flow Direction

6.2.1 Rationale for Monitoring Well Location and Well Screen Intervals

A total of two (2) monitoring wells were installed on the Phase Two Property, and an additional monitoring well installed by others in 2017 was used in order to assess the groundwater quality on the Phase Two Property. The COPCs associated with these APECs were PHCs, VOCs, and Metals. The monitoring wells were screened to intersect the first water bearing formation encountered, in order to allow for the assessment of LNAPL, and to provide information regarding the quality of the groundwater at the water table. The monitoring wells were screened within the clayey silt till unit encountered at an approximate depth of 4.6 to 11.3 mbgs. This unit is inferred to be an unconfined aquifer.

6.2.2 Results of Interface Probe Measurements

A summary of the groundwater level measurements is provided in Table 1. The groundwater level measurements were collected using a Solinst interface probe (Model 122). The depth to groundwater was found to range between 6.14 to 6.47 mbgs on February 4, 2019. There was no indication of DNAPL or LNAPL in the monitoring wells at this time.

6.2.3 Product Thickness and Free Flowing Product

No evidence of product was observed in the monitoring wells at the time of the investigation.

6.2.4 Groundwater Elevation

The groundwater elevation was calculated by subtracting the depth to groundwater from the surface elevation determined by the surface elevation survey conducted as part of this investigation. A summary of the groundwater elevations calculated is presented in Table 1. Generally, the groundwater elevation was found to range from 184 to 187.8 masl in the aquifer investigated.

6.2.5 Groundwater Flow Direction

The groundwater flow direction was interpreted using the groundwater elevations calculated for the monitoring wells currently and previously installed on the Phase Two Property. Based on the groundwater elevations calculated, the groundwater flow direction is interpreted to be northeast towards Sawmill Creek. The groundwater elevation contours, and flow direction are presented on Figure 5.

It should be noted that longer term groundwater monitoring is required in order to confirm the groundwater flow direction on the Phase Two Property.

6.2.6 Assessment of Potential for Temporal Variability in Groundwater Flow Direction

The shallow aquifer investigated is inferred to be an unconfined aquifer, based on the soil stratigraphy observed in the boreholes advanced on the Phase Two Property. It is possible that temporal variations in groundwater elevations may occur on the Phase Two Property in response to seasonal weather patterns.

Temporal variability in groundwater level has the ability to influence the groundwater flow direction. The degree of variation in groundwater levels on the Phase Two Property can only be confirmed with long-term monitoring.

6.2.7 Evaluation of Potential Interaction Between Buried Utilities and the Water Table

The groundwater table was encountered at depths ranging from 6.14 to 6.47 mbgs on the Phase Two Property. Buried utility services are present on the Phase Two Property and are inferred to be situated approximately 2 to 3 mbgs. The utility trenches are not considered to be a potential preferential pathway for contaminant migration in groundwater, as the utility beds are situated above the water table.

6.3 Ground Water Hydraulic Gradients

6.3.1 Horizontal Hydraulic Gradient

The horizontal hydraulic gradient was calculated based on the groundwater levels recorded on February 4, 2019.

Table 6-2: Summary of Horizontal Hydraulic Gradient Calculations

Hydrogeological Unit	Calculated Horizontal Hydraulic Gradient
Clayey Silt Till	Minimum: 0.017 Average: 0.021 Maximum: 0.022

6.3.2 Vertical Hydraulic Gradient

The vertical hydraulic gradient was not calculated, as no groundwater impacts were identified on the Phase Two Property.

6.4 Fine-Medium Soil Texture

Not Applicable – more than one-third of the soils encountered on the Phase Two Property are considered to be coarse textured. For the purposes of evaluating the SCS, all soils on the Phase Two Property are considered coarse textured.

6.4.1 Rational for use of Fine-Medium Soil Texture Category

A total of two (2) grain size analyses were conducted by others in 2017. The results of the grain size analyses indicate that more than two-thirds of the soils encountered are medium to fine textured.

6.4.2 Results of Grain Size Analysis

A summary of the soil samples analyzed and the corresponding grain size results is presented in the table below:

Table 6-3: Summary of Grain Size Analyses

Sample	% Gravel	% Sand	% Silt	% Clay	Classification
BH6 SS4	4%	27%	38%	31%	Medium-fine textured
BH8 SS4	7%	26%	40%	27%	Medium-fine textured

6.4.3 Rational for the Number of Samples Collected and Analyzed

The grain size analyses were conducted for the purposes of the geotechnical investigation completed by others in 2017.

6.5 Soil Field Screening

Soil vapour headspace readings were collected at the time of sample collection, the results of which are presented on the borehole logs (Appendix C). The soil vapour headspace readings were collected using a PID and CGD in methane elimination mode. The PID readings were all non-detectable (0ppm). The CGD readings ranged between 30 and 145 ppm.

The soil samples were also screened for visual and olfactory indicators of impacts (e.g. staining, odours). No staining, aesthetic impacts or odours were noted during field screening.

6.6 Soil Quality

The results of the chemical analyses conducted are presented in Tables 5 through 9. A visual summary of the location of the sample locations is provided in Figures 6A through 6D. The laboratory certificates of analysis have been provided under Appendix D.

6.6.1 Metals and ORPs

A total of six (6) samples (including 1 QA/QC duplicate) were submitted by DS for analysis of metals and ORPs. A total of seven (7) samples (including 1 QA/QC duplicate) were previously analyzed by SPCL in 2017. The results of the analyses are tabulated in Table 5 and presented on Figure 6A. The results of the analyses indicated no exceedances of the Table 2 SCS. The pH values of the samples analyzed ranged between 6.35 and 7.85 and was therefore within the acceptable pH range of 5 to 9.

6.6.2 Petroleum Hydrocarbons

A total of eight (8) samples (including 1 QA/QC duplicate) were submitted for analysis of PHCs (incl. BTEX) as part of this investigation. The results of the analyses indicated no exceedances of the Table 2 SCS.

A total of three (3) soil samples were previously analysed as part of the 2017 Phase II ESA. The results of the chemical analyses are tabulated in Table 6 and presented on Figure 6B.

All samples met the Table 2 SCS with exception of one exceedance of the Table 2 SCS that was identified previously in boreholeBH4 in 2017as shown on the following Table:

Table 6-3: Summary of PHCs Exceedances in Soil (2017)

Sample ID	Sample Depth (mbgs)	Parameter	Units	Table 2 SCS	Reported Value
BH4 SS2	0.8-1.4	F2 (C10-C16)	µg/g	98 µg/g	**150** µg/g

This Phase Two ESA included the delineation of impacted soil in the vicinity of BH4. Borehole MW19-4 was drilled adjacent to BH4. Sample MW19-4 SS3 collected from a depth of 1.5-2.1 mbgs met the Table 2 Standards for PHCs. Four additional borehole BH19-D1 through BH19-D4 were completed around BH4/MW19-4 for the purposes of horizontal delineation of the previously identified PHC impact. All of the horizontal delineation samples met the Table 2 SCS. The estimated horizontal extent of the PHC impact in soil is depicted on Figure 6B. The estimated vertical extent of the PHC impact in soil is depicted on Figures 8C and 8D.

6.6.3 Volatile Organic Compounds

One sample was submitted by DS for analysis of VOCs as part of this investigation. One (1) samples was previously analyzed as part of the 2017 Phase II ESA. The results of the analyses are tabulated in Table 7 and presented on Figure 6B. The results of the analyses indicated no exceedances of the Table 2 SCS.

6.6.4 Polycyclic Aromatic Hydrocarbons

A total of two (2) samples were submitted by DS for analysis of PAHs. The results of the analyses are tabulated in Table 8 and presented on Figure 6C. The results of the analyses indicated no exceedances of the Table 2 SCS.

6.6.5 OC Pesticides

A total of two (2) samples were submitted by DS for analysis of OC Pesticides as part of this investigation. Seven (7) samples were previously analyzed as part of the 2017 Phase II ESA. The results of the analyses are tabulated in Table 9 and presented on Figure 6D. The results of the analysis indicated no exceedances of the Table 2 SCS.

6.6.6 Commentary on Soil Quality

No evidence of chemical or biological transformations of the parameters analyzed was observed. The horizontal extent of the PHC impacts in soil appeared to extent within a 3m radius of borehole BH4. The vertical extent was found to be approximately 1.5 mbgs. Remediation of the impacted soil was completed on April 5, 2019 through the excavation and off-site disposal of the impacted soils. Additional detail pertaining to the remedial excavation activity is provided in Appendix E.

6.7 Ground Water Quality

The results of the chemical analyses conducted are presented in Tables 10 through 12. A visual summary of the location of the sample locations is provided in Figures 7A and 7B. The laboratory certificates of analysis have been provided under Appendix D.

6.7.1 Metals

One sample was collected from MW19-1 in order to investigate APEC 1. The results of the analyses are tabulated in Table 10 and presented on Figure 7A. The groundwater sample was field filtered using a 0.45-micron in-line filter. The results of the analyses indicated no exceedances of the Table 2 SCS.

6.7.2 Petroleum Hydrocarbons

A total of three (3) samples (including 1 QA/QC duplicate) were submitted by DS for analysis of PHCs (incl. BTEX). One sample (1) from BH/MW4 was previously analyzed as part of the 2017 Phase II ESA. The results of the analyses are tabulated in Table 11 and presented on Figure 7B. The results of the analyses indicated no exceedances of the Table 2 SCS.

6.7.3 Volatile Organic Compounds

A total of three (3) samples (including 1 QA/QC duplicate) were submitted by DS for analysis of VOCs. The results of the analyses are tabulated in Table 12 and presented on Figure 7B. The results of the analyses indicated no exceedances of the Table 2 SCS.

6.7.4 Commentary on Groundwater Quality

No evidence of chemical or biological transformations of the parameters analyzed was observed.

6.8 Sediment Quality

No sediment was present on the Phase Two Property at the time of the investigation.

6.9 Quality Assurance and Quality Control Results

Collection of soil and groundwater samples was conducted in general accordance with the MECP *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*. As described in Section 5.12, dedicated equipment was used where possible, and all non-dedicated equipment was decontaminated before and between sampling events. All soil and groundwater samples were transferred directly into laboratory-supplied containers. The laboratory containers were prepared by the laboratory with suitable preservative, as

required. All samples were stored and transported under refrigerated conditions. Chain of custody protocols were maintained from the time of sampling to delivery to the analytical laboratory.

The field QA/QC program involved the collection of field duplicate soil and groundwater samples, and the use of a trip blank for each groundwater sampling event (when suitable). In addition to the controls listed above, the analytical laboratory employed method blanks, internal laboratory duplicates, surrogate spike samples, matrix spike samples, and standard reference materials.

A summary of the field duplicate samples analyzed and an interpretation of the efficacy of the QA/QC program is provided in the table below.

Table 6-4: Summary of QA/QC Results

Sample ID	QA/QC duplicate	Medium	Parameter Analyzed	QA/QC Result
Dup-1	MW19-1 SS2	Soil	Metals & Inorganics	All results were within the analytical protocol criteria for RPD
Dup-2	BH19-D4 SS2	Soil	PHCs, BTEX	All results were within the analytical protocol criteria for RPD
Dup-1	MW19-4	Groundwater	PHCs, BTEX, VOCs	All results were within the analytical protocol criteria for RPD
Dup1	GS7	Soil	OC Pesticides	All results were within the analytical protocol criteria for RPD
Dup2	GS5	Soil	Metals & Inorganics	All results were within the analytical protocol criteria for RPD

Based on the interpretation of the laboratory results and the QA/QC program, it is the opinion of the QP that the laboratory analytical data can be relied upon.

All samples were handled in accordance with the MECP Analytical Protocol regarding sample holding time, preservation methods, storage requirements, and type of container.

Maxxam routinely conducts internal QA/QC analyses in order to satisfy regulatory QA/QC requirements. The results of the Maxxam QA/QC analyses for the submitted soil samples are summarized in the laboratory Certificates of Analyses provided in Appendix D.

The following comments were provided by Maxxam on the laboratory Certificates of Analysis. Commentary on the comments has been provided below:

- Laboratory Certificate R5583363– Sodium was not detected for BH19-2 SS2, BH19-3 SS1, BH19-5 SS1 and BH19-6 SS2. To report SAR, the sodium detection limit was used in the calculation. This value represents a maximum ratio. DS does not consider this to be an issue of significant concern and it has no impact on the overall interpretation of the analytical data;
- Laboratory Certificate R5590583 - All 100mL amber glass bottles for F2-F4 analysis and 40mL vials for F1BTX and VOC analysis contained visible sediment. The visible sediment was included in the extraction for F2-F4. DS does not consider this result to be an issue of significant concern and it has no impact on the overall interpretation of the analytical data;

With respect to subsection 47(3) of O. Reg 153/04 (as amended), all certificates of analysis or analytical reports pursuant to clause 47(2) (b) of the regulation comply with subsection 47(3). A certificate of analysis has been received for each sample submitted for analysis and have been provided (in full) in Appendix D.

A review of the QA/QC sample results indicated that no issues were identified with respect to both the field collection methodology and the laboratory reporting. It is the opinion of the QP that the analytical data obtained are representative of the soil and groundwater conditions at the Phase Two Property for the purpose of assessing whether the soil and groundwater at the Phase Property meets the applicable MECP SCS.

6.10 Phase Two Conceptual Site Model

The Phase Two Conceptual Site Model is provided under Appendix F.

7.0 Conclusions

This Phase Two ESA involved that advancement of ten (10) boreholes, the installation of two (2) monitoring wells on the Phase Two Property, and the collection of soil and groundwater samples for analysis of the potential contaminants of concern, including: PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs, OC Pesticides. The scope of work was implemented in order to confirm the findings of the previous Phase II ESA completed in 2017, to further assess the vertical and horizontal extent of the PHC impacts identified in soil collected from BH4 in 2017, and to assess the APECs identified in the Phase One ESA completed by DS.

Based on a review of the findings of this Phase Two ESA, DS presents the following conclusions and recommendations:

- Fill material was not identified in the boreholes advanced by DS. Weathered/disturbed native material was encountered below the topsoil. It is the opinion of DS that the fill material described in the previous 2017 geotechnical investigation does not appear to be imported fill material.
- The previously identified PHC impacts in soil have been successfully remediated. The remaining soils on-site meet the applicable MECP Table 2 RPI SCS.
- The results of the groundwater chemical analyses conducted indicated that all samples analyzed met the Table 2 SCS.
- All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

The results of this Phase Two ESA indicate that as of the Certification Date of April 5, 2019, the site condition standards applicable to the Site have been met. No further work is warranted at this time. A Record of Site Condition may be filed based on the findings of this investigation.

7.1 Qualifications of the Assessors

Tanner Leonhardt, B.Eng.

Mr. Leonhardt is an Environmental Technician with DS Consultants Ltd. Tanner holds a Bachelor of Engineering Degree from the University of Guelph and has several years of experience working in the environmental industry. Tanner has experience in conducting Phase One and Phase Two Environmental Site Assessments, soil and groundwater remediation, and has supported several risk assessment projects.

Mr. Patrick (Rick) Fioravanti, B.Sc., P.Geo., QP_{ESA}

Mr. Fioravanti is the Manager of Environmental Services with DS Consultants Limited. Patrick holds an Honours Bachelor of Science with distinction in Toxicology from the University of Guelph and is a practicing member of the Association of Professional Geoscientists of Ontario (APGO). Patrick has over eight years of environmental consulting experience and has conducted and/or managed over 100 projects in his professional experience. Patrick has extensive experience conducting Phase One and Phase Two Environmental Site Assessments in support of brownfields redevelopment in urban settings, and been involved in numerous remediation projects, supported many risk assessments, and successfully filed Records of Site Condition with the Ministry of Environment and Climate Change. He has conducted work across southern and eastern Ontario, and Quebec in his

professional experience. Patrick is considered a Qualified Person to conduct Environmental Site Assessments as defined by Ontario Regulation 153/04 (as amended).

7.2 Signatures

This Phase Two ESA was conducted under the supervision of Mr. Patrick (Rick) Fioravanti, B.Sc., P.Geo., QP_{ESA} in accordance with the requirements of O.Reg. 153/04 (as amended). The findings and conclusions presented have been determined based on the information obtained at the time of the investigation, and on an assessment of the conditions of the Site at this time.

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

Yours truly,

DS Consultants Ltd

Prepared by:

Tanner Leonhardt, B.Eng.
Environmental Technician

Reviewed by:

Patrick Fioravanti, B.Sc., P.Geo., QP_{ESA}
Manager – Environmental Services

7.3 Limitations

This report was prepared for the sole use of Mattamy (5150 Ninth Line) Limited and is intended to provide an assessment of the environmental condition on the property located at 5150 Ninth Line, Mississauga, Ontario. The information presented in this report is based on information collected during the completion of the Phase Two Environmental Site Assessment by DS Consultants Ltd. The material in this report reflects DS' judgment in light of the information available at the time of report preparation. This report may not be relied upon by any other person or entity without the written authorization of DS Consultants Ltd. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this documents or findings, conclusions and recommendations represented herein, is at the sole risk of said users.

The conclusions drawn from the Phase Two ESA were based on information at selected observation and sampling locations. Conditions between and beyond these locations may become apparent during future investigations or on-site work, which could not be detected or anticipated at the time of this investigation. The sampling locations were chosen based upon a cursory historical search, visual observations and limited information provided by persons knowledgeable about past and current activities on this site during the Phase Two ESA activities. As such, DS Consultants Ltd. cannot be held responsible for environmental conditions at the site that was not apparent from the available information.

8.0 References

- Armstrong, D.K. and Dodge, J.E.P. *Paleozoic Geology Map of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 219.
- Chapman, L.J. and Putnam, D.F. 2007. *The Physiography of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 228.
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- Ontario Ministry of the Environment, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.*
- Ontario Ministry of Environment, 15 April 2011. *Soil, Ground Water and Sediment Standards for use under part XV.1of the Environmental Protection Act.*
- Ontario Ministry of the Environment, June 2011. *Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04.*
- Ontario Ministry of the Environment, July 2011. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.*
- The Ontario Geological Survey. 2003. *Surficial Geology of Southern Ontario*.
- "Preliminary Report on Geotechnical Investigation, Proposed Residential Development, 5150 Ninth Line, Mississauga, Ontario", prepared by Sirati & Partners Consultants Ltd.
- "Preliminary Report on Geotechnical Investigation, Proposed Residential Development, 5170 Ninth Line, Mississauga, Ontario", prepared by Sirati & Partners Consultants Ltd.
- "Phase One Environmental Site Assessment, 5170 Ninth Line, Mississauga, Ontario", prepared by Sirati & Partners Consultants Ltd.
- "Phase Two Environmental Site Assessment, 5170 Ninth Line, Mississauga, Ontario", prepared by Sirati & Partners Consultants Ltd.
- "Phase One Environmental Site Assessment, Proposed New Development, 5150 Ninth Line, Mississauga, Ontario", prepared by Sirati & Partners Consultants Ltd.
- "Phase One Environmental Site Assessment, 5150 Ninth Line, Mississauga, Ontario", prepared for Mattamy (5150 Ninth Line) Limited, prepared by DS Consultants Ltd., dated February 11, 2019.

Tables

Table 1:

Summary of Monitoring Well Installation and Groundwater Data

Well ID			MW19-1	MW19-4	BH9	BH4
Installed By:			DS	DS	SPCL	SPCL
Installation Date:			Jan-19	Jan-19	Jan-17	Jun-17
Well Status:			Active	Active	Active	Destroyed
Inner Diameter		(mm)	50	50	50	50
Surface Elevation		(masl)	190.47	192.79	194.00	192.20
Bottom of Concrete Seal/Top of Bentonite Seal		mbgs	0.30	0.30	0.30	0.30
		masl	190.17	192.49	193.70	191.90
Bottom of Bentonite Seal/Top of Sand Pack		mbgs	4.90	3.70	4.00	4.10
		masl	185.57	189.09	190.00	188.10
Top of Well Screen		mbgs	5.50	4.30	4.60	4.70
		masl	184.97	188.49	189.40	187.50
Well Screen Length		m	3.05	3.05	1.52	3.50
Bottom of Well Screen		mbgs	8.55	7.35	8.20	8.20
		masl	181.92	185.44	185.50	183.70
GW Monitoring						
04-Feb-19	Depth to GW	mbgs	6.47	6.22	6.14	NA
	GW Elevation	masl	184.00	186.57	187.86	NA

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 2:
Summary of Soil Samples Submitted for Chemical Analysis

Borehole ID	Sample No.	Sample Depth (mbgs)	Soil Description	Parameter Analyzed	APEC Investigated
MW19-1	SS2	0.8-1.4	Clayey Silt	Metals and Inorganis, PHCs, BTEX, VOCs	APEC-1, 2, 3
BH19-2	SS1	0-0.6	Sandy Silt	OC Pesticides	APEC-3, 5
	SS2	0.8-1.4	Sandy Silt Till	Metals and Inorganics	APEC-3, 5
BH19-3	SS1	0-0.6	Sandy Silt	Metals and Inorganics	APEC-2, 3, 5
MW19-4	SS3	1.5-2.1	Sandy Silt	PHCs+BTEX	APEC-4
	SS5	3.1-3.7	Silt Till	PHCs + BTEX	APEC-4
BH19-5	SS1	0-0.6	Clayey Silt	Metals and Inorganics, OC Pesticides	APEC-3, 5
BH19-6	SS1	0-0.6	Clayey Silt	PAHs	APEC-2, 3, 5
	SS2	0.8-1.4	Clayey Silt	Metals and Inorganics	APEC-2, 3, 5
BH19-D1	SS2	0.8-1.4	Sandy Silt	PHCs + BTEX	APEC-4
BH19-D2	SS2	0.8-1.4	Sandy Silt Till	PHCs + BTEX	APEC-4
BH19-D3	SS2	0.8-1.4	Sandy Silt Till	PHCs + BTEX	APEC-4
BH19-D4	SS2	0.8-1.4	Sandy Silt	PHCs + BTEX	APEC-4
Dup-1 (MW19-1 SS2)		0.8-1.4	Clayey Silt	Metals and Inorganics	APEC-1, 2, 3
Dup-2 (BH19-D4 SS2)		0.8-1.4	Sandy Silt	PHCs + BTEX	APEC-4
SPCL Samples					
BH3	SS2	0.8-1.4	Silty Clay Till	Metals and Inorganics, OC Pesticides	APEC-2, 3, 5
BH4	SS1	0-0.6	Clayey Silt	Metals and Inorganics	APEC-2, 3, 4, 5
	SS2	0.8-1.4	Silty Clay Till	PHCs+BTEX, VOCs	APEC-2, 3, 4, 5
	SS6	4.5-5.2	Silty Clay Till	PHCs+BTEX, VOCs	APEC-2, 3, 4, 5
GS5		0-1.2	Clayey Silt	Metals and Inorganics, OC Pesticides	APEC-2, 3, 5
GS6		0-1.2	Clayey Silt	Metals and Inorganics, OC Pesticides	APEC-2, 3, 5
GS7		0-1.2	Clayey Silt	Metals and Inorganics, PHCs, OC Pesticides	APEC-2, 3, 5
GS8		0-1.2	Clayey Silt	Metals and Inorganics, OC Pesticides	APEC-2, 3, 5
Dup1 (GS7)		0-1.2	Clayey Silt	OC Pesticides	APEC-2, 3, 5
Dup2 (GS5)		0-1.2	Clayey Silt	Metals and Inorganics	APEC-2, 3, 5

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 3:

Summary of Groundwater Samples Submitted for Chemical Analysis

Well ID	Well Screen Interval (masl)			Sample Date	Parameter Analyzed	APEC Investigated
MW19-1	181.92	-	184.97	04-Feb-19	Metals, PHCs, VOCs	APEC-1
MW19-4	185.44	-	188.49	04-Feb-19	PHCs, VOCs	APEC-4
Dup-1 (MW19-4)	185.44	-	188.49	04-Feb-19	PHCs, VOCs	Duplicate of MW19-4
BH4	183.7		187.5	14-Jun-17	PHCs	APEC-4

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 4:

Summary of APECs Investigated

APEC	Description	PCOCs	Media	Boreholes Within APEC	Samples Analysed	Parameter Analyzed
APEC-1	AST in Storage Shed	PHCs, VOCs, Metals	Soil	MW19-1	SS2	Metals and Inorganics, PHCs, VOCs, BTEX
			Groundwater		MW19-1	Metals, PHCs, VOCs
APEC-2	Fill Material	PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil	MW19-1	SS2	Metals and Inorganics, PHCs, VOCs, BTEX
				BH19-3	SS1	Metals and Inorganics
				BH19-6	SS1	PAHS
					SS2	Metals+Inorganics
				BH3	SS2	Metals and Inorganics, OC Pesticides
				BH4	1	Metals and Inorganics
				GS5		Metals and Inorganics, OC Pesticides
				GS6		Metals and Inorganics, OC Pesticides
				GS7		Metals and Inorganics, PHCs, OC Pesticides
				GS8		Metals and Inorganics, OC Pesticides
				Dup1		OC Pesticides
				Dup2		Metals and Inorganics
APEC-3	Pesticide Application	OC Pesticides, Metals	Soil	BH19-2	SS1	OC Pesticides
					SS2	Metals and Inorganics
				BH19-3	SS1	Metals and Inorganics
				BH19-5	SS1	Metals and Inorganics, OC Pesticides
				BH19-6	SS2	Metals+Inorganics
				BH3	SS2	Metals and Inorganics, OC Pesticides
				BH4	1	Metals and Inorganics
				GS5		Metals and Inorganics, OC Pesticides
				GS6		Metals and Inorganics, OC Pesticides
				GS7		Metals and Inorganics, PHCs, OC Pesticides
				GS8		Metals and Inorganics, OC Pesticides
				Dup1		OC Pesticides
				Dup2		Metals and Inorganics

Table 4:

Summary of APECs Investigated

APEC	Description	PCOCs	Media	Boreholes Within APEC	Samples Analysed	Parameter Analyzed
APEC-4	Shallow PHC Impacts identified in SPCL Phase II ESA	PHCs+BTEX	Soil	MW19-4	SS3	PHCs+BTEX
					SS5	PHCs+BTEX
				BH19-D1	SS2	PHCs+BTEX
				BH19-D2	SS2	PHCs+BTEX
				BH19-D3	SS2	PHCs+BTEX
				BH19-D4	SS2	PHCs+BTEX
				BH4	1	Metals and Inorganics
					2	PHCs+BTEX, VOCs
					6	PHCs+BTEX, VOCs
APEC-5	Historical Orchard	OC Pesticides, Metals	Soil	BH19-2	SS1	OC Pesticides
					SS2	Metals and Inorganics
				BH19-3	SS1	Metals and Inorganics
				BH19-5	SS1	Metals and Inorganics, OC Pesticides
				BH19-6	SS2	Metals+Inorganics
				BH3	SS2	Metals and Inorganics, OC Pesticides
				BH4	1	Metals and Inorganics
				GS5		Metals and Inorganics, OC Pesticides
				GS6		Metals and Inorganics, OC Pesticides
				GS7		Metals and Inorganics, PHCs, OC Pesticides
				GS8		Metals and Inorganics, OC Pesticides
				Dup1		OC Pesticides
				Dup2		Metals and Inorganics

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 5: Summary of Metals and ORPs in Soil

Parameter	MECP Table 2 RPI	MW19-1 SS2	Dup-1	BH19-2 SS2	BH19-3 SS1	BH19-5 SS1	BH19-6 SS2	BH3 SS2
Date of Collection		24-Jan-19	24-Jan-19	24-Jan-19	24-Jan-19	23-Jan-19	24-Jan-19	30-Jun-17
Date Reported		05-Feb-19	05-Feb-19	05-Feb-19	05-Feb-19	05-Feb-19	05-Feb-19	13-Jul-17
Sampling Depth (mbgs)		0.8-1.4	0.8-1.4	0.8-1.4	0-0.6	0-0.6	0.8-1.4	0.8-1.4
Analytical Report Reference No.		IVP019	IVP028	IVP021	IVP022	IVP025	IVP027	8542394
Antimony	7.5	<0.20	<0.20	<0.20	0.21	0.24	<0.20	<0.8
Arsenic	18	3.2	3.4	4	5.7	5.2	3.4	5
Barium	390	69	83	74	80	71	96	68
Beryllium	4	0.68	0.78	0.7	1	0.62	0.62	0.6
Boron (Hot Water Soluble)	1.5	0.86	0.77	0.053	0.13	0.59	0.065	0.22
Cadmium	1.2	0.18	0.28	0.18	<0.10	0.22	0.12	<0.5
Chromium	160	18	20	19	27	19	20	20
Chromium VI	8	<0.2	0.2	<0.2	<0.2	<0.2	0.2	<0.2
Cobalt	22	9.1	10	10	14	9.5	11	12.6
Copper	140	16	17	27	34	28	23	28
Lead	120	15	13	9.8	13	19	9.8	10
Mercury	0.27	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10
Molybdenum	6.9	0.56	<0.50	<0.50	<0.50	0.57	<0.50	0.5
Nickel	100	17	19	22	33	18	23	27
Selenium	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.6
Silver	20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2
Thallium	1	0.13	0.14	0.12	0.17	0.14	0.16	<0.4
Vanadium	86	29	32	27	38	28	30	32
Zinc	340	63	60	51	74	90	51	56
pH (pH Units)	NV	7.54	7.38	7.79	7.71	7.57	7.75	7.85
Conductivity (ms/cm)	0.7	0.32	0.17	0.18	0.19	0.29	0.22	0.182
Sodium Adsorption Ratio	5	0.4	0.34	0.25	0.24	0.2	0.22	0.375
Cyanide, Free	0.051	0.02	0.01	<0.01	<0.01	0.02	<0.01	<0.040
Boron (Total)	120	5.5	6	9.3	9.9	7.9	9	11
Uranium	23	0.67	0.94	0.54	0.59	0.53	0.65	0.7

For Table Notes see **Notes for Soil and Groundwater**

Table 5: Summary of Metals and ORPs in Soil

Parameter	MECP Table 2 RPI	BH4 SS1	GS-5	Dup2	GS-6	GS-7	GS-8
Date of Collection		30-Jun-17	30-Jun-17	30-Jun-17	30-Jun-17	30-Jun-17	30-Jun-17
Date Reported		13-Jul-17	13-Jul-17	13-Jul-17	13-Jul-17	12-Jul-17	13-Jul-17
Sampling Depth (mbgs)		0-0.6	0-1.2	0-1.2	0-1.2	0-1.2	0-1.2
Analytical Report Reference No.		8542395	8542397	8542417	8542399	8542402	8542405
Antimony	7.5	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	18	5	5	5	5	6	6
Barium	390	80	70	70	73	90	77
Beryllium	4	0.7	0.8	0.7	0.8	0.9	0.7
Boron (Hot Water Soluble)	1.5	0.49	0.24	0.20	0.21	0.17	0.38
Cadmium	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	160	22	24	24	25	29	32
Chromium VI	8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	22	10.0	10.7	10.9	12.9	14.0	12.4
Copper	140	25	21	22	26	32	49
Lead	120	27	15	16	12	12	30
Mercury	0.27	<0.10	0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum	6.9	0.8	<0.5	<0.5	<0.5	<0.5	0.8
Nickel	100	19	22	23	28	32	30
Selenium	2.4	0.6	0.5	0.6	0.8	0.7	0.6
Silver	20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vanadium	86	37	39	39	41	45	41
Zinc	340	92	66	67	60	64	163
pH (pH Units)	NV	6.35	7.42	7.62	7.58	7.51	7.38
Conductivity (ms/cm)	0.7	0.267	0.287	0.283	0.186	0.202	0.410
Sodium Adsorption Ratio	5	0.278	0.266	0.273	0.245	0.441	1.03
Cyanide, Free	0.051	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Boron (Total)	120	10	9	9	12	14	14
Uranium	23	0.6	0.6	0.6	0.7	0.6	0.7

For Table Notes see **Notes for Soil and Groundwater**

Table 6: Summary of PHCs in Soil

Parameter	MECP Table 2 RPI	MW19-1 SS2	BH19-D1 SS2	BH919-D2 SS2	BH19-D3 SS2	BH19-D4 SS2	Dup-2
Date of Collection		24-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19
Date Reported		05-Feb-19	01-Feb-19	01-Feb-19	01-Feb-19	01-Feb-19	01-Feb-19
Sampling Depth (mbgs)		0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4
Analytical Report Reference No.		IVP019	IVO977	IVO978	IVO979	IVO980	IVO981
Benzene	0.21	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylbenzene	2	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Xylenes, Total	3.1	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
F1-BTEX	55	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	98	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	2800	<50	<50	<50	<50	<50	<50

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 6: Summary of PHCs in Soil

Parameter	MECP Table 2 RPI	MW19-4 SS3	BH4 SS6	GS-7	BH4 SS2
Date of Collection		23-Jan-19	30-Jun-17	30-Jun-17	30-Jun-17
Date Reported		05-Feb-19	12-Jul-17	12-Jul-17	13-Jul-17
Sampling Depth (mbgs)		1.5-2.1	4.5-5.2	0-1.2	0.8-1.4
Analytical Report Reference No.		IVP023	8539228	8539230	8542418
Benzene	0.21	<0.020	-	<0.020	<0.020
Toluene	2.3	<0.020	-	<0.080	<0.080
Ethylbenzene	2	<0.020	-	<0.050	<0.050
Xylenes, Total	3.1	<0.040	-	<0.050	<0.050
F1-BTEX	55	<10	<5	<5	16
F2 (C10-C16)	98	<10	<10	<10	**150**
F3 (C16-C34)	300	<50	<50	<50	100
F4 (C34-C50)	2800	<50	<50	<50	<50

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 7: Summary of VOCs in Soil

Parameter	MECP Table 2 RPI	MW19-1 SS2	BH4 SS6
Date of Collection		24-Jan-19	30-Jun-17
Date Reported		05-Feb-19	12-Jul-17
Sampling Depth (mbgs)		0.8-1.4	4.5-5.2
Analytical Report Reference No.		IVP019	8539228
Acetone	16	<0.50	<0.50
Bromodichloromethane	1.5	<0.050	<0.050
Bromoform	0.27	<0.050	<0.050
Bromomethane	0.05	<0.050	<0.050
Carbon Tetrachloride	0.05	<0.050	<0.030
Chlorobenzene	2.4	<0.050	<0.050
Chloroform	0.05	<0.050	<0.040
Dibromochloromethane	2.3	<0.050	<0.050
1,2-Dichlorobenzene	1.2	<0.050	<0.050
1,3-Dichlorobenzene	4.8	<0.050	<0.050
1,4-Dichlorobenzene	0.083	<0.050	<0.050
1,1-Dichloroethane	0.47	<0.050	<0.020
1,2-Dichloroethane	0.05	<0.050	<0.030
1,1-Dichloroethylene	0.05	<0.050	<0.050
Cis-1,2-Dichloroethylene	1.9	<0.050	<0.020
Trans-1,2-Dichloroethylene	0.084	<0.050	<0.050
1,2-Dichloropropane	0.05	<0.050	<0.030
Ethylene Dibromide	0.05	<0.050	<0.040
Methyl Ethyl Ketone	16	<0.50	<0.50
Methylene Chloride	0.1	<0.050	<0.050
Methyl Isobutyl Ketone	1.7	<0.50	<0.50
Methyl-t-Butyl Ether	0.75	<0.050	<0.050
Styrene	0.7	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.058	<0.050	<0.040
1,1,2,2-Tetrachloroethane	0.05	<0.050	<0.050
Tetrachloroethylene	0.28	<0.050	<0.050
1,1,1-Trichloroethane	0.38	<0.050	<0.050
1,1,2-Trichloroethane	0.05	<0.050	<0.040
Trichloroethylene	0.061	<0.050	<0.030
Vinyl Chloride	0.02	<0.020	<0.020
Dichlorodifluoromethane	16	<0.050	<0.050
Hexane(n)	2.8	<0.050	<0.050
Trichlorofluoromethane	4	<0.050	<0.050
1,3-Dichloropropene (cis + trans)	0.05	<0.050	<0.050

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 8: Summary of PAHs in Soil

Parameter	MECP Table 2 RPI	BH19-3 SS1	BH19-6 SS1
Date of Collection		24-Jan-19	24-Jan-19
Date Reported		05-Feb-19	05-Feb-19
Sampling Depth (mbgs)		0-0.6	0-0.6
Analytical Report Reference No.		IVP022	IVP026
Acenaphthene	7.9	<0.0050	<0.0050
Acenaphthylene	0.15	<0.0050	<0.0050
Anthracene	0.67	<0.0050	<0.0050
Benzo(a)anthracene	0.5	<0.0050	<0.0050
Benzo(a)pyrene	0.3	<0.0050	<0.0050
Benzo(b/j)fluoranthene	0.78	<0.0050	0.0051
Benzo(g,h,i)perylene	6.6	<0.0050	<0.0050
Benzo(k)fluoranthene	0.78	<0.0050	<0.0050
Chrysene	7	<0.0050	<0.0050
Dibenz(a,h)anthracene	0.1	<0.0050	<0.0050
Fluoranthene	0.69	<0.0050	0.0066
Fluorene	62	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	0.38	<0.0050	<0.0050
1+2-Methylnaphthalene	0.99	<0.0050	<0.0050
Naphthalene	0.6	<0.0050	<0.0050
Phenanthrene	6.2	<0.0050	<0.0050
Pyrene	78	<0.0050	<0.0050

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 10: Summary of Metals in Groundwater

Parameter	MECP Table 2	MW19-1
Date of Collection		4-Feb-19
Date Reported		11-Feb-19
Screen Interval (mbgs)		5.5-8.55
Analytical Report Reference No.		IXF336
Dissolved Antimony (Sb)	6	1.4
Dissolved Arsenic (As)	25	2.8
Dissolved Barium (Ba)	1000	45
Dissolved Beryllium (Be)	4	<0.50
Dissolved Boron (B)	5000	220
Dissolved Cadmium (Cd)	2.7	<0.10
Dissolved Chromium (Cr)	50	48
Dissolved Cobalt (Co)	3.8	<0.50
Dissolved Copper (Cu)	87	9.6
Dissolved Lead (Pb)	10	<0.50
Dissolved Molybdenum (Mo)	70	38
Dissolved Nickel (Ni)	100	1.7
Dissolved Selenium (Se)	10	<2.0
Dissolved Silver (Ag)	1.5	<0.10
Dissolved Thallium (Tl)	2	<0.050
Dissolved Uranium (U)	20	4.2
Dissolved Vanadium (V)	6.2	4.7
Dissolved Zinc (Zn)	1100	<5.0
Dissolved Sodium (Na)	490000	180000
Dissolved Chloride (Cl-)	790	-
WAD Cyanide (Free)	66	-
Hexavalent Chromium (CrVI)	25	-
Mercury (Hg)	0.29	-

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 9: Summary of OC Pesticides in Soil

Parameter	MECP Table 2 RPI	BH19-3 SS1	BH19-6 SS1	BH3 SS2	GS-5	GS-6	GS-7	Dup1	GS-8	BH4 SS2
Date of Collection		24-Jan-19	24-Jan-19	30-Jun-17	30-Jun-17	30-Jun-17	30-Jun-17	30-Jun-17	30-Jun-17	30-Jun-17
Date Reported		05-Feb-19	05-Feb-19	13-Jul-17	13-Jul-17	13-Jul-17	12-Jul-17	13-Jul-17	13-Jul-17	13-Jul-17
Sampling Depth (mbgs)		0-0.6	0-0.6	0.8-1.4	0-1.2	0-1.2	0-1.2	0-1.2	0-1.2	0.8-1.4
Analytical Report Reference No.		IVP022	IVP026	8542394	8542397	8542399	8542402	8542412	8542405	8542418
Aldrin	0.05	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane (total)	0.05	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDD (total)	3.3	<0.0020	<0.0020	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE (total)	0.26	<0.0020	<0.0020	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDT (total)	1.4	<0.0020	<0.0020	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dieldrin	0.05	<0.0020	<0.0020	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Total Endosulphan	0.04	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	0.04	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	0.15	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	0.05	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lindane	0.056	<0.0020	<0.0020	-	-	-	-	-	-	-
Methoxychlor	0.13	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total PCB	0.35	<0.015	<0.015	-	-	-	-	-	-	-
Hexachlorobenzene	0.52	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	0.012	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachloroethane	0.089	<0.0020	<0.0020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 11: Summary of PHCs in Groundwater

Parameter	MECP Table 2	MW19-1	MW19-4	Dup-1	MW4
Date of Collection		4-Feb-19	4-Feb-19	4-Feb-19	14-Jun-17
Date Reported		11-Feb-19	11-Feb-19	11-Feb-19	20-Jul-17
Screen Interval (mbgs)		5.5-8.55	4.3-7.35	4.3-7.35	4.7-8.2
Analytical Report Reference No.		IXF336	IXF337	IXF338	IXF339
Benzene	5	<0.20	<0.20	<0.20	<0.20
Toluene	24	<0.20	0.46	0.46	<0.20
Ethylbenzene	2.4	<0.20	<0.20	<0.20	<0.10
Xylenes (Total)	300	<0.20	<0.20	<0.20	<0.20
F1 (C6 to C10) minus BTEX	750	<25	<25	<25	<25
F2 (C10 to C16)	150	<100	<100	<100	<100
F3 (C16 to C34)	500	<200	<200	<200	<100
F4 (C34 to C50) minus PAHs	500	<200	<200	<200	<100

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 12:Summary of VOCs in Groundwater

Parameter	MECP Table 2	MW19-1	MW19-4	Dup-1	Trip Blank
Date of Collection		4-Feb-19	4-Feb-19	4-Feb-19	NA
Date Reported		11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19
Screen Interval (mbgs)		5.5-8.55	4.3-7.35	4.3-7.35	NA
Analytical Report Reference No.		IXF336	IXF337	IXF338	IXF339
Acetone	2700	22	28	31	<10
Bromodichloromethane	16	<0.50	<0.50	<0.50	<0.50
Bromoform	25	<1.0	<1.0	<1.0	<1.0
Bromomethane	0.89	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	25	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	3	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	5	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	1.6	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20
Cis-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50
Trans-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	5	<0.20	<0.20	<0.20	<0.20
Cis-1,3-Dichloropropylene	NV	<0.30	<0.30	<0.30	<0.30
Trans-1,3-Dichloropropylene	NV	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide	0.2	<0.20	<0.20	<0.20	<0.20
Methyl Ethyl Ketone	1800	<10	<10	<10	<10
Methylene Chloride	50	<2.0	<2.0	<2.0	<2.0
Methyl Isobutyl Ketone	640	<5.0	<5.0	<5.0	<5.0
Methyl-t-Butyl Ether	15	<0.50	<0.50	<0.50	<0.50
Styrene	5.4	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	1.6	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	200	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	0.5	<0.20	<0.20	<0.20	<0.20
Dichlorodifluoromethane	590	<1.0	<1.0	<1.0	<1.0
Hexane(n)	51	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	150	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropene (cis + trans)	0.5	<0.50	<0.50	<0.50	<0.50

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 13: Summary of Maximum Concentrations in Soil

	Parameter	Standard	Maximum Concentration	Location
Metals and ORPs	Antimony	7.5	0.24	BH19-5 SS1
	Arsenic	18	6	GS-7
	Barium	390	96	BH19-6 SS2
	Beryllium	4	1	BH19-3 SS1
	Boron (Hot Water Soluble)	1.5	0.86	MW19-1 SS2
	Cadmium	1.2	0.28	Dup-1
	Chromium	160	32	GS-8
	Chromium VI	8	0.2	Dup-1
	Cobalt	22	14	BH19-3 SS1
	Copper	140	49	GS-8
	Lead	120	30	GS-8
	Mercury	0.27	0.1	GS-5
	Molybdenum	6.9	0.8	BH4 SS1
	Nickel	100	33	BH19-3 SS1
	Selenium	2.4	0.8	GS-6
	Silver	20	<0.20	All Samples
	Thallium	1	0.17	BH19-3 SS1
	Vanadium	86	45	GS-7
	Zinc	340	163	GS-8
	pH (pH Units)	NV	7.85	BH3 SS2
	Conductivity (ms/cm)	0.7	0.41	GS-8
	Sodium Adsorption Ratio	5	1.03	GS-8
	Cyanide, Free	0.051	0.02	MW19-1 SS2
	Boron (Total)	120	14	GS-7
PHCs	Benzene	0.21	<0.020	All Samples
	Toluene	2.3	<0.020	All Samples
	Ethylbenzene	2	<0.020	All Samples
	Xylenes, Total	3.1	<0.040	All Samples
	F1-BTEX	55	16	BH4 SS2
	F2 (C10-C16)	98	**150**	BH4 SS2
	F3 (C16-C34)	300	100	BH4 SS2
	F4 (C34-C50)	2800	<50	All Samples
VOCs	Acetone	16	<0.50	All Samples
	Bromodichloromethane	1.5	<0.050	All Samples
	Bromoform	0.27	<0.050	All Samples
	Bromomethane	0.05	<0.050	All Samples
	Carbon Tetrachloride	0.05	<0.050	All Samples
	Chlorobenzene	2.4	<0.050	All Samples
	Chloroform	0.05	<0.050	All Samples
	Dibromochloromethane	2.3	<0.050	All Samples
	1,2-Dichlorobenzene	1.2	<0.050	All Samples
	1,3-Dichlorobenzene	4.8	<0.050	All Samples
	1,4-Dichlorobenzene	0.083	<0.050	All Samples
	1,1-Dichloroethane	0.47	<0.050	All Samples

Table 13: Summary of Maximum Concentrations in Soil

	Parameter	Standard	Maximum Concentration	Location
VOCs	1,2-Dichloroethane	0.05	<0.050	All Samples
	1,1-Dichloroethylene	0.05	<0.050	All Samples
	Cis-1,2-Dichloroethylene	1.9	<0.050	All Samples
	Trans-1,2-Dichloroethylene	0.084	<0.050	All Samples
	1,2-Dichloropropane	0.05	<0.050	All Samples
	Ethylene Dibromide	0.05	<0.050	All Samples
	Methyl Ethyl Ketone	16	<0.50	All Samples
	Methylene Chloride	0.1	<0.050	All Samples
	Methyl Isobutyl Ketone	1.7	<0.50	All Samples
	Methyl-t-Butyl Ether	0.75	<0.050	All Samples
	Styrene	0.7	<0.050	All Samples
	1,1,1,2-Tetrachloroethane	0.058	<0.050	All Samples
	1,1,2,2-Tetrachloroethane	0.05	<0.050	All Samples
	Tetrachloroethylene	0.28	<0.050	All Samples
	1,1,1-Trichloroethane	0.38	<0.050	All Samples
	1,1,2-Trichloroethane	0.05	<0.050	All Samples
	Trichloroethylene	0.061	<0.050	All Samples
	Vinyl Chloride	0.02	<0.020	All Samples
	Dichlorodifluoromethane	16	<0.050	All Samples
	Hexane(n)	2.8	<0.050	All Samples
	Trichlorofluoromethane	4	<0.050	All Samples
	1,3-Dichloropropene (cis + trans)	0.05	<0.050	All Samples
PAHs	Acenaphthene	7.9	<0.0050	All Samples
	Acenaphthylene	0.15	<0.0050	All Samples
	Anthracene	0.67	<0.0050	All Samples
	Benzo(a)anthracene	0.5	<0.0050	All Samples
	Benzo(a)pyrene	0.3	<0.0050	All Samples
	Benzo(b/j)fluoranthene	0.78	0.0051	BH19-6 SS1
	Benzo(g,h,i)perylene	6.6	<0.0050	All Samples
	Benzo(k)fluoranthene	0.78	<0.0050	All Samples
	Chrysene	7	<0.0050	All Samples
	Dibenz(a,h)anthracene	0.1	<0.0050	All Samples
	Fluoranthene	0.69	0.0066	BH19-6 SS1
	Fluorene	62	<0.0050	All Samples
	Indeno(1,2,3-cd)pyrene	0.38	<0.0050	All Samples
	1+2-Methylnaphthalene	0.99	<0.0050	All Samples
	Naphthalene	0.6	<0.0050	All Samples
	Phenanthrene	6.2	<0.0050	All Samples
	Pyrene	78	<0.0050	All Samples

Table 13: Summary of Maximum Concentrations in Soil

	Parameter	Standard	Maximum Concentration	Location
OC Pesticides	Aldrin	0.05	<0.0020	All Samples
	Chlordane (total)	0.05	<0.0020	All Samples
	DDD (total)	3.3	<0.0020	All Samples
	DDE (total)	0.26	<0.0020	All Samples
	DDT (total)	1.4	<0.0020	All Samples
	Dieldrin	0.05	<0.0020	All Samples
	Total Endosulphan	0.04	<0.0020	All Samples
	Endrin	0.04	<0.0020	All Samples
	Heptachlor	0.15	<0.0020	All Samples
	Heptachlor Epoxide	0.05	<0.0020	All Samples
	Lindane	0.056	<0.0020	All Samples
	Methoxychlor	0.13	<0.0050	All Samples
	Total PCB	0.35	<0.015	All Samples
	Hexachlorobenzene	0.52	<0.0020	All Samples
	Hexachlorobutadiene	0.012	<0.0020	All Samples
	Hexachloroethane	0.089	<0.0020	All Samples

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 14: Summary of Maximum Concentrations in Groundwater

Parameter		Standard	Maximum Concentration	Location
Metals and ORPs	Dissolved Antimony (Sb)	6	1.4	All Samples
	Dissolved Arsenic (As)	25	2.8	All Samples
	Dissolved Barium (Ba)	1000	45	All Samples
	Dissolved Beryllium (Be)	4	<0.50	All Samples
	Dissolved Boron (B)	5000	220	All Samples
	Dissolved Cadmium (Cd)	2.7	<0.10	All Samples
	Dissolved Chromium (Cr)	50	48	All Samples
	Dissolved Cobalt (Co)	3.8	<0.50	All Samples
	Dissolved Copper (Cu)	87	9.6	All Samples
	Dissolved Lead (Pb)	10	<0.50	All Samples
	Dissolved Molybdenum (Mo)	70	38	All Samples
	Dissolved Nickel (Ni)	100	1.7	All Samples
	Dissolved Selenium (Se)	10	<2.0	All Samples
	Dissolved Silver (Ag)	1.5	<0.10	All Samples
	Dissolved Thallium (Tl)	2	<0.050	All Samples
	Dissolved Uranium (U)	20	4.2	All Samples
	Dissolved Vanadium (V)	6.2	4.7	All Samples
	Dissolved Zinc (Zn)	1100	<5.0	All Samples
	Dissolved Sodium (Na)	490000	180000	All Samples
PHCs	Benzene	5	<0.20	All Samples
	Ethylbenzene	2.4	0.46	MW19-4
	Toluene	24	<0.20	All Samples
	Xylenes (Total)	300	<0.20	All Samples
	F1 (C6 to C10) minus BTEX	750	<25	All Samples
	F2 (C10 to C16)	150	<100	All Samples
	F3 (C16 to C34)	500	<200	All Samples
	F4 (C34 to C50) minus PAHs	500	<200	All Samples
VOCs	Acetone	2700	31	Dup-1
	Bromodichloromethane	16	<0.50	All Samples
	Bromoform	25	<1.0	All Samples
	Bromomethane	0.89	<0.50	All Samples
	Carbon Tetrachloride	0.79	<0.20	All Samples
	Chlorobenzene	30	<0.20	All Samples
	Chloroform	2.4	<0.20	All Samples
	Dibromochloromethane	25	<0.50	All Samples
	1,2-Dichlorobenzene	3	<0.50	All Samples
	1,3-Dichlorobenzene	59	<0.50	All Samples
	1,4-Dichlorobenzene	1	<0.50	All Samples
	1,1-Dichloroethane	5	<0.20	All Samples
	1,2-Dichloroethane	1.6	<0.50	All Samples
	1,1-Dichloroethylene	1.6	<0.20	All Samples
	Cis-1,2-Dichloroethylene	1.6	<0.50	All Samples
	Trans-1,2-Dichloroethylene	1.6	<0.50	All Samples
	1,2-Dichloropropane	5	<0.20	All Samples

Table 14: Summary of Maximum Concentrations in Groundwater

Parameter		Standard	Maximum Concentration	Location
VOCs	Cis-1,3-Dichloropropylene	NV	<0.30	All Samples
	Trans-1,3-Dichloropropylene	NV	<0.40	All Samples
	Ethylene Dibromide	0.2	<0.20	All Samples
	Methyl Ethyl Ketone	1800	<10	All Samples
	Methylene Chloride	50	<2.0	All Samples
	Methyl Isobutyl Ketone	640	<5.0	All Samples
	Methyl-t-Butyl Ether	15	<0.50	All Samples
	Styrene	5.4	<0.50	All Samples
	1,1,1,2-Tetrachloroethane	1.1	<0.50	All Samples
	1,1,2,2-Tetrachloroethane	1	<0.50	All Samples
	Tetrachloroethylene	1.6	<0.20	All Samples
	1,1,1-Trichloroethane	200	<0.20	All Samples
	1,1,2-Trichloroethane	4.7	<0.50	All Samples
	Trichloroethylene	1.6	<0.20	All Samples
	Vinyl Chloride	0.5	<0.20	All Samples
	Dichlorodifluoromethane	590	<1.0	All Samples
	Hexane(n)	51	<1.0	All Samples
	Trichlorofluoromethane	150	<0.50	All Samples
	1,3-Dichloropropene (cis + trans)	0.5	<0.50	All Samples

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Notes for Soil & Groundwater Summary Tables

1.	mbgs =	Meters below ground surface
2.	masl =	Meters above sea level
3.		Units for all soil analyses are in µg/g (ppm) unless otherwise indicated
4.		Units for all groundwater analyses are in µg/L (ppb) unless otherwise indicated
5.	MECP Table 2 SCS =	Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition as contained in Table 2 of the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", published by the MECP on April 15, 2011
7.		For soil and groundwater analytical results, concentration exceeds the applicable Standards
8.	NM =	Not Monitored
9.	PHC =	Petroluem Hydrocarbon
10.	PAH =	Polyaromatic Hydrocarbon
11.	BTEX =	Benzene, Toluene, Ethylbenzene, Xylene
12.	OCPs =	Organochlorine Pesticides

Figures

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 1 - Site Location Plan.qgs

Legend

Approx. Property Boundary

0 150 300 m

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **SITE LOCATION PLAN**

N

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: 1

Image/Map Source: *Google Street Map*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 2 - Phase One Property Site Plan.qgs

Legend

Approx. Property Boundary

0 75 150 m

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Client: MATTAMY (5150 NINTH LINE) LIMITED

Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

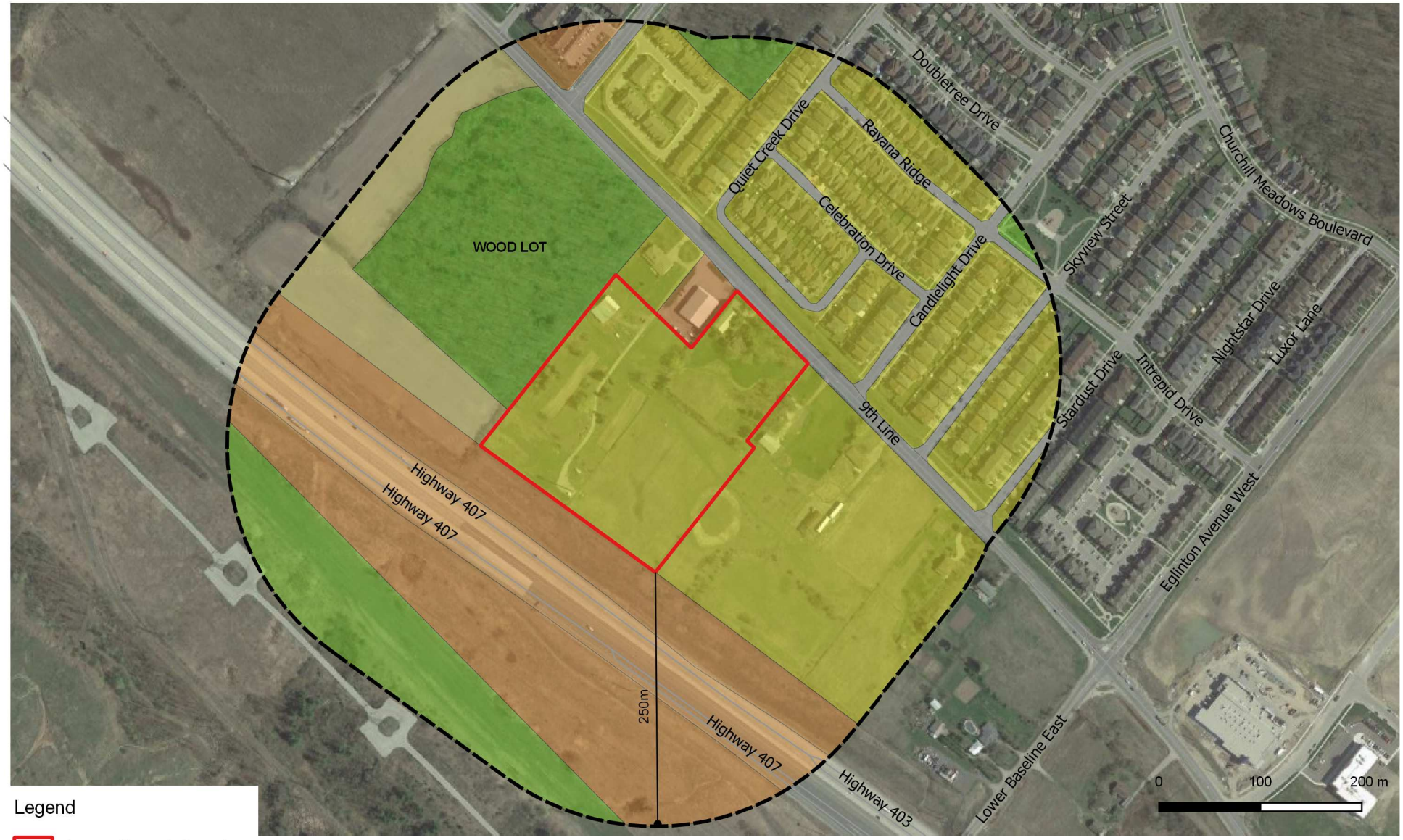
Title: **PHASE ONE PROPERTY SITE PLAN**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: 2

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 3A - Phase One Study Area.qgs



Legend

- Approx. Property Boundary
- 250m Buffer
- Residential
- Commercial
- Parkland
- Agricultural

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **PHASE ONE STUDY AREA**

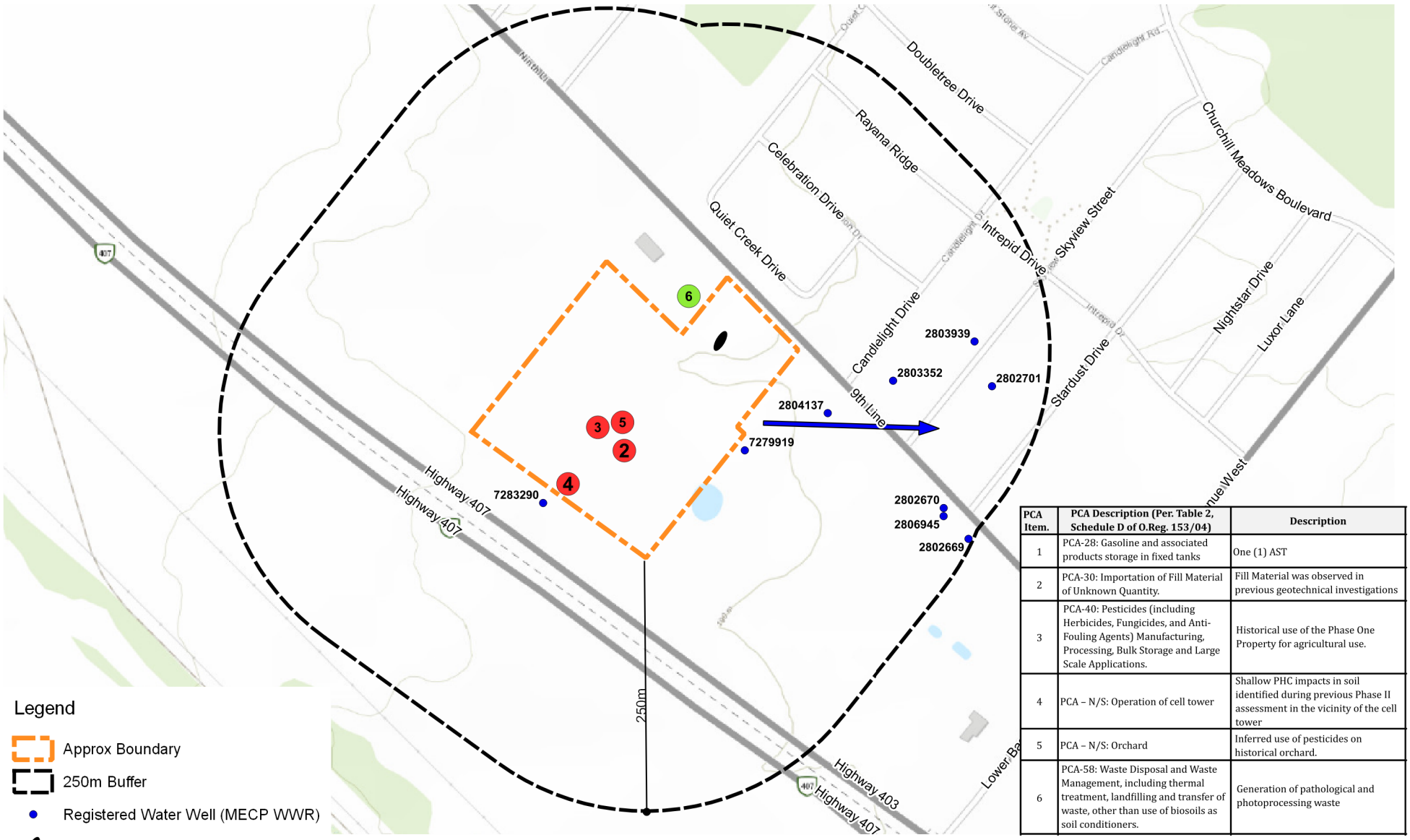
N

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **3A**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 3B - PCA within Phase One Study Area.qgs



PCA Item.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description
1	PCA-28: Gasoline and associated products storage in fixed tanks	One (1) AST
2	PCA-30: Importation of Fill Material of Unknown Quantity.	Fill Material was observed in previous geotechnical investigations
3	PCA-40: Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications.	Historical use of the Phase One Property for agricultural use.
4	PCA – N/S: Operation of cell tower	Shallow PHC impacts in soil identified during previous Phase II assessment in the vicinity of the cell tower
5	PCA – N/S: Orchard	Inferred use of pesticides on historical orchard.
6	PCA-58: Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners.	Generation of pathological and photoprocessing waste

Legend

- Approx Boundary
- 250m Buffer
- Registered Water Well (MECP WWR)
- AST (PCA Item 1)
- PCA Not Contributing to APEC
- PCA Contributing to APEC
- Inferred Groundwater Flow Direction

0 100 200 m

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5150 Ninth Line, Mississauga,ON

Title: **PCA WITHIN PHASE ONE STUDY AREA**

N

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
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Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **3B**

Image/Map Source: *Esri Topo Map*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 4 - Borehole and Monitoring Well with APEC.qgs

APEC	PCA	COPCs	Media of Concern
APEC-1	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	PHCs, VOCs, Metals	Soil, Groundwater
APEC-2	PCA-30: Importation of Fill Material of Unknown Quantity.	PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-3	PCA-40: Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications.	OC Pesticides, metals	Soil
APEC-4	PCA N/S: Shallow PHC impacts in soil identified during previous Phase II assessment in the vicinity of the cell tower	PHCs	Soil
APEC-5	PCA – N/S: Inferred use of pesticides on historical orchard	OC Pesticides, metals	Soil

Legend

- Approx. Property Boundary
- Borehole by DS
- Monitoring Well by DS
- Monitoring Well Location by Others
- Borehole Location by Others
- Grab Sample Location by Others
- APEC 1
- APEC 4
- APEC 2,3 & 5
- Cross Section
- AST

0 50 100 m

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **BOREHOLE/GRAB SAMPLE LOCATION PLAN WITH APECs**

N

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: 4

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 5 - Groundwater Elevation Contours.qgs

Legend

- Approx. Property Boundary
- Borehole by DS
- Monitoring Well by DS
- Monitoring Well Location by Others
- Borehole Location by Others
- Grab Sample Location by Others
- Groundwater Elevation Contour
- Interpreted Groundwater Flow Direction

184.00 = Groundwater Elevation (Feb 4-2019)

0 50 100 m

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GROUNDWATER ELEVATION CONTOURS & FLOW DIRECTION**

N

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: 5

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 6A – Soil Characterization – Metals and ORPs.qgs

Legend

- Approx. Property Boundary
- APEC 1
- APEC 2,3 & 5
- Monitoring Well Location by Others
- Borehole Location by Others
- Grab Sample Location by Others
- Borehole by DS
- Monitoring Well by DS
- AST
- Met T2 RPI Standards
- (0-1.2) Sample Depth (mbgs)

0 50 100 m

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Client: MATTAMY (5150 NINTH LINE) LIMITED

Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **SOIL CHARACTERIZATION - METALS & ORPs**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **6A**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 6B – Soil Characterization – PHC-VOC.qgs

BH4			
Sample:		BH4 SS2	BH4 SS6
Depth (mbgs):		0.8-1.4	4.5-5.2
Parameter	Standard	Result	Result
PHC F2	98	150	Met T2 SCS

Legend

- Approx. Property Boundary
- APEC 1
- APEC 4
- AST
- Monitoring Well Location by Others
- Borehole Location by Others
- Grab Sample Location by Others
- Borehole by DS
- Monitoring Well by DS
- Exceeds T2 RPI Standards
- Met T2 RPI Standards
- (0-1.2) Sample Depth (mbgs)

0 50 100 m

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **SOIL CHARACTERIZATION - PHC & VOC**

N

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **6B**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 6C – Soil Characterization – PAHs.qgs

Legend

- Approx. Property Boundary
- APEC 2
- Monitoring Well Location by Others
- Borehole Location by Others
- Grab Sample Location by Others
- Borehole by DS
- Monitoring Well by DS
- Met T2 RPI Standards

(0-1.2) Sample Depth (mbgs)

0 50 100 m

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Client: MATTAMY (5150 NINTH LINE) LIMITED

Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **SOIL CHARACTERIZATION - PAHs**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **6C**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 6D – Soil Characterization – OC Pesticides.qgs

Legend

- Approx. Property Boundary
- APEC 3 & 5
- Monitoring Well Location by Others
- Borehole Location by Others
- Grab Sample Location by Others
- Borehole by DS
- Monitoring Well by DS
- Met T2 RPI Standards
- (0-1.2) Sample Depth (mbgs)

0 50 100 m

N

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **SOIL CHARACTERIZATION - OC PESTICIDES**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **6D**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 7A – GW Characterization – Metals.qgs

Legend

- Approx. Property Boundary
- APEC 1
- Monitoring Well Location by Others
- Borehole Location by Others
- Grab Sample Location by Others
- Borehole by DS
- Monitoring Well by DS
- AST
- Met T2 RPI Standards
- (5.5-8.55) Well Screen Interval (mbgs)

0 50 100 m

N

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GROUNDWATER CHARACTERIZATION - METALS**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **7A**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 7B – GW Characterization – PHC-VOC.qgs

Legend

- Approx. Property Boundary
- APEC 1
- APEC 4
- AST
- Monitoring Well Location by Others
- Borehole Location by Others
- Grab Sample Location by Others
- Borehole by DS
- Monitoring Well by DS
- Met T2 RPI Standards
- (5.5-8.55) Well Screen Interval (mbgs)

0 50 100 m

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GROUNDWATER CHARACTERIZATION - PHC & VOC**

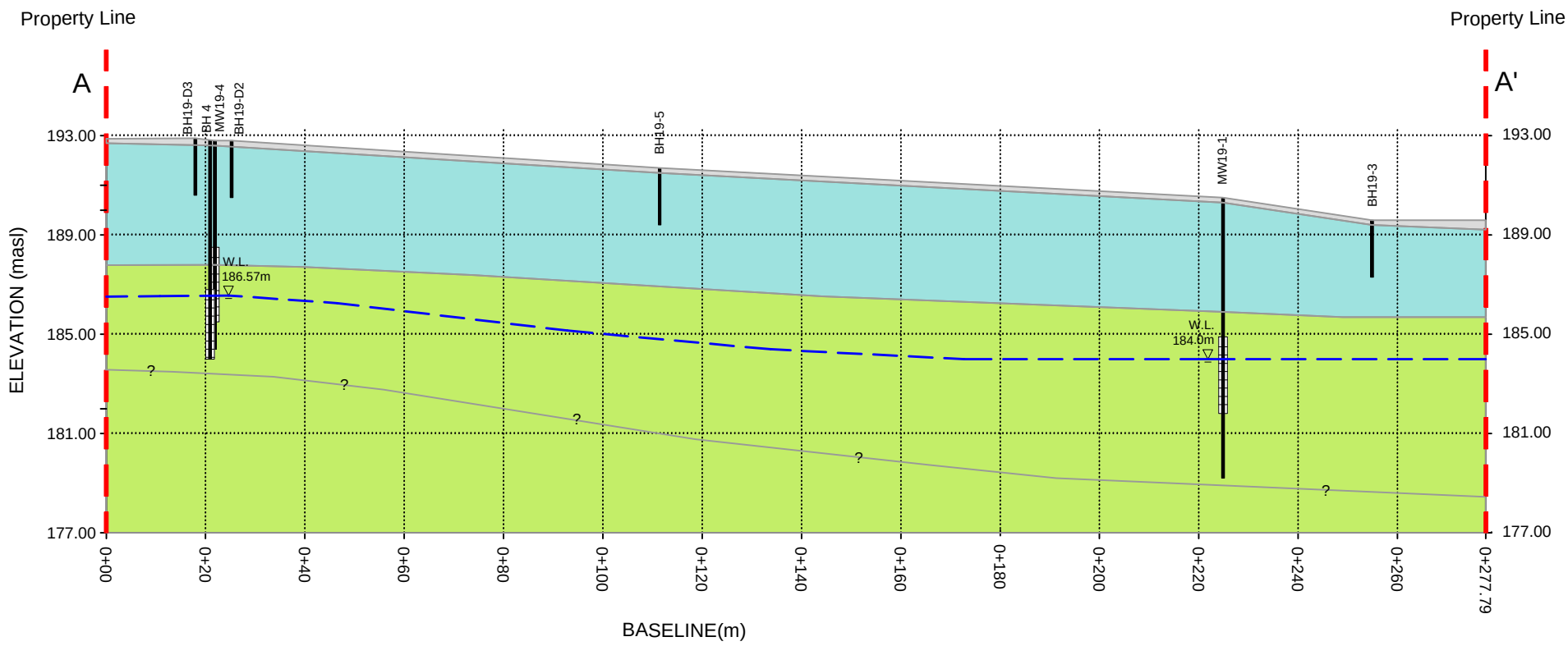
N

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **7B**

Image/Map Source: *Google Satellite Image*

Path:j:\-gis\18-748 5150 ninth line\7-misc\cad\geological cross sections-9th line.dwg



Topsoil

Sandy Silt Till/Sandy Silt

Clayey Silt Till/Silty Clay Till

Horizontal Scale: 1:1250
Vertical Scale: 1:250

Groundwater Elevation (Feb 4- 2019)

Potentiometric Surface (Feb 4 - 2019)

Well

Screen

DS CONSULTANTS LTD.
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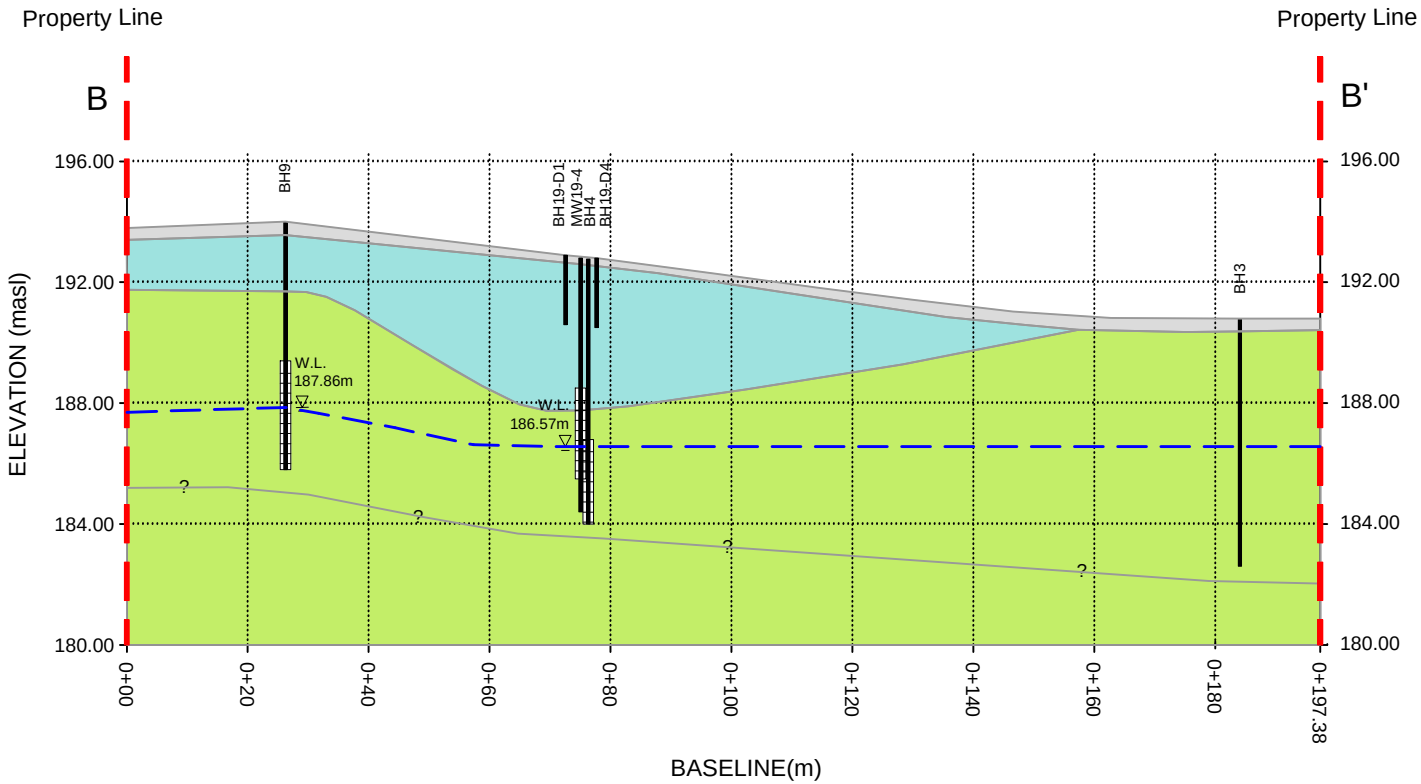
Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GEOLOGICAL CROSS SECTION A-A'**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev.	Scale:	Project No:	Figure No.
	As Shown	18-748-100	8A

Path:j:\-gis\18-748 5150 ninth line\7-misc\cad\geological cross sections-9th line.dwg



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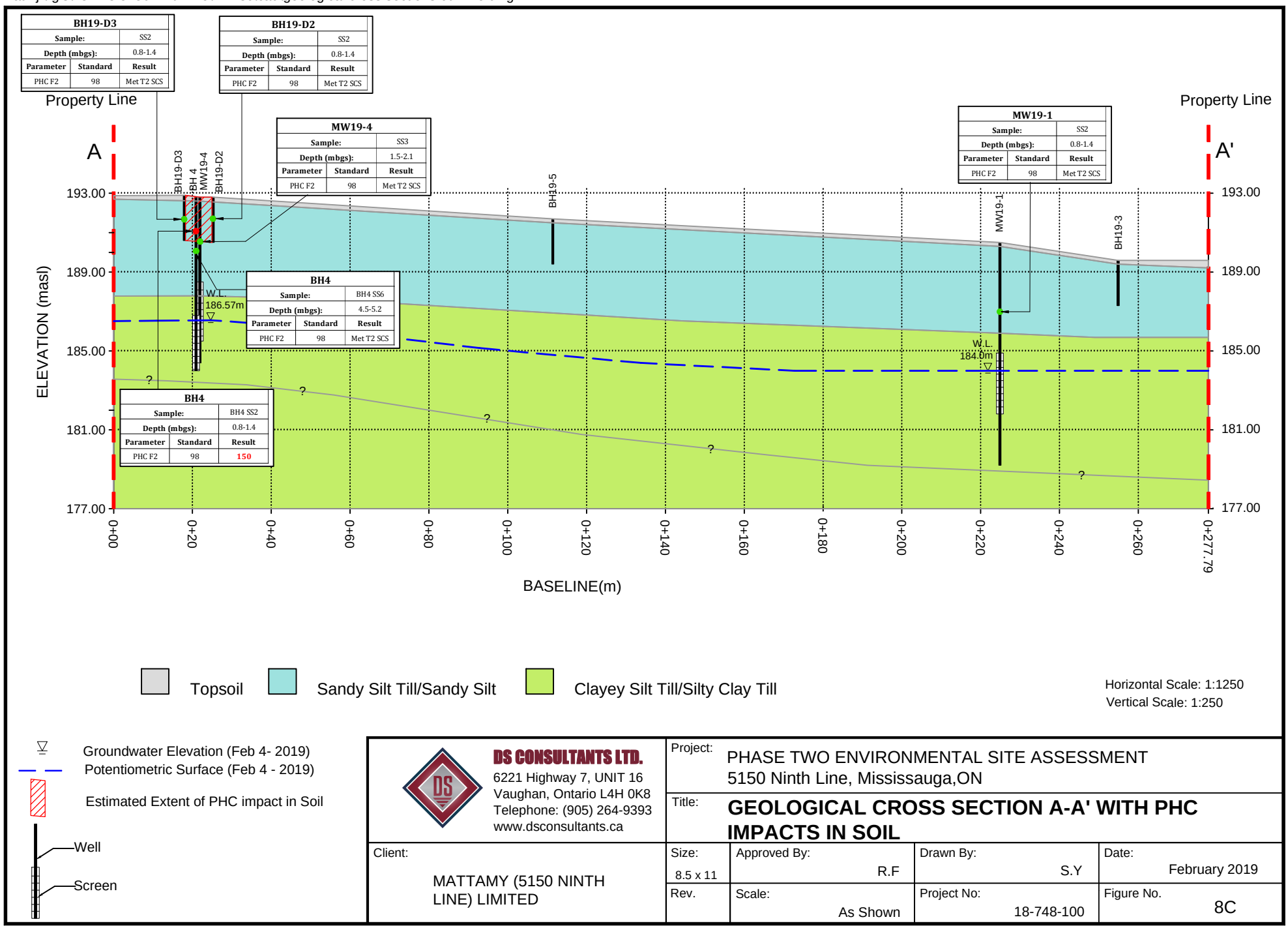
Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GEOLOGICAL CROSS SECTION B-B'**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev.	Scale:	Project No:	Figure No.
	As Shown	18-748-100	8B

Path:j:\-gis\18-748 5150 ninth line\7-misc\cad\geological cross sections-9th line.dwg



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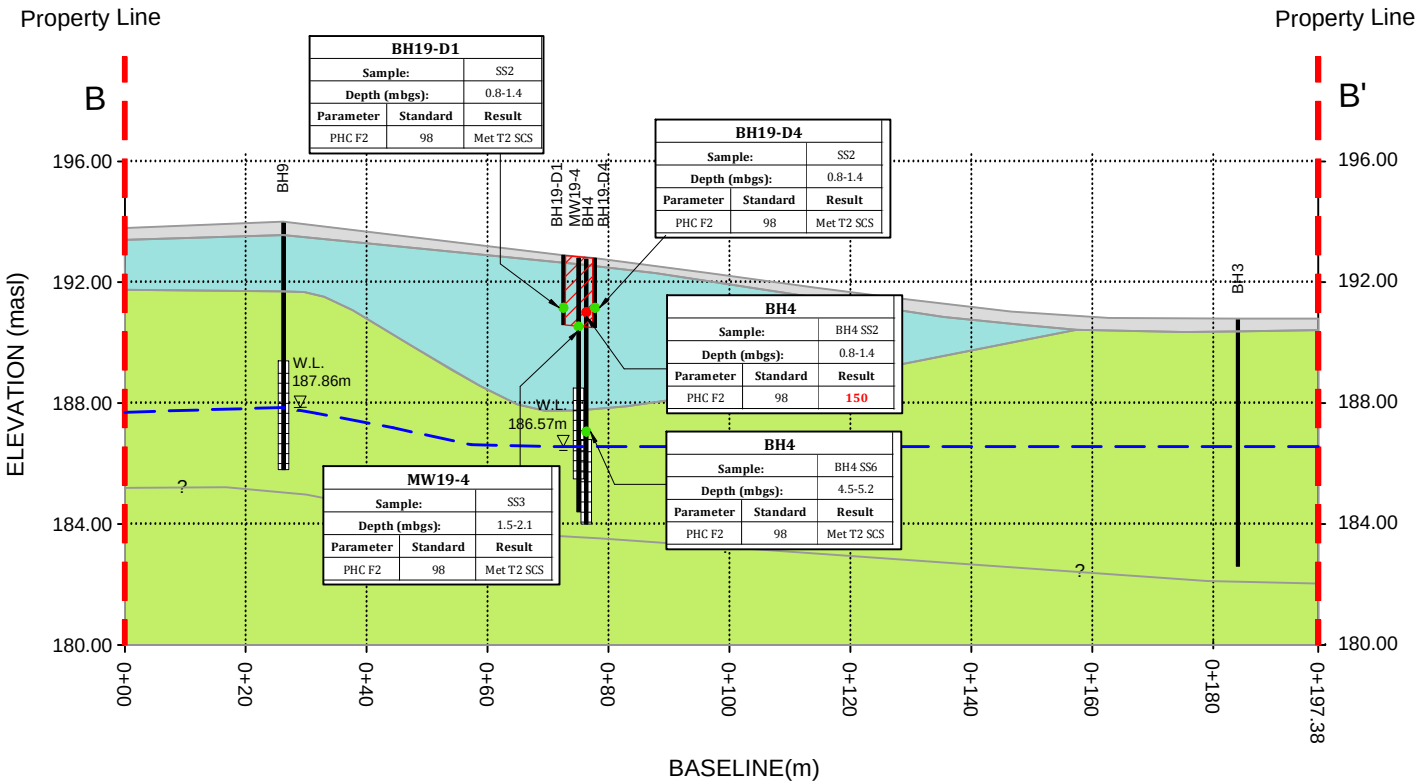
Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GEOLOGICAL CROSS SECTION A-A' WITH PHC IMPACTS IN SOIL**

Client:	Size:	Approved By:	Drawn By:	Date:
MATTAMY (5150 NINTH LINE) LIMITED	8.5 x 11	R.F	S.Y	February 2019
	Rev.	Scale: As Shown	Project No: 18-748-100	Figure No. 8C

Path:j:\-gis\18-748 5150 ninth line\7-misc\cad\geological cross sections-9th line.dwg



BH19-D1	
Sample:	SS2
Depth (mbgs):	0.8-1.4
Parameter / Standard	Result
PHC F2 / 98	Met T2 SCS

BH19-D4	
Sample:	SS2
Depth (mbgs):	0.8-1.4
Parameter / Standard	Result
PHC F2 / 98	Met T2 SCS

BH4	
Sample:	BH4 SS2
Depth (mbgs):	0.8-1.4
Parameter / Standard	Result
PHC F2 / 98	150

BH4	
Sample:	BH4 SS6
Depth (mbgs):	4.5-5.2
Parameter / Standard	Result
PHC F2 / 98	Met T2 SCS

MW19-4	
Sample:	SS3
Depth (mbgs):	1.5-2.1
Parameter / Standard	Result
PHC F2 / 98	Met T2 SCS

Topsoil

Sandy Silt Till/Sandy Silt

Clayey Silt Till/Silty Clay Till

Horizontal Scale: 1:1250
Vertical Scale: 1:250

Groundwater Elevation (Feb 4- 2019)

Potentiometric Surface (Feb 4 - 2019)

Estimated Extent of PHC impact in Soil

Well

Screen

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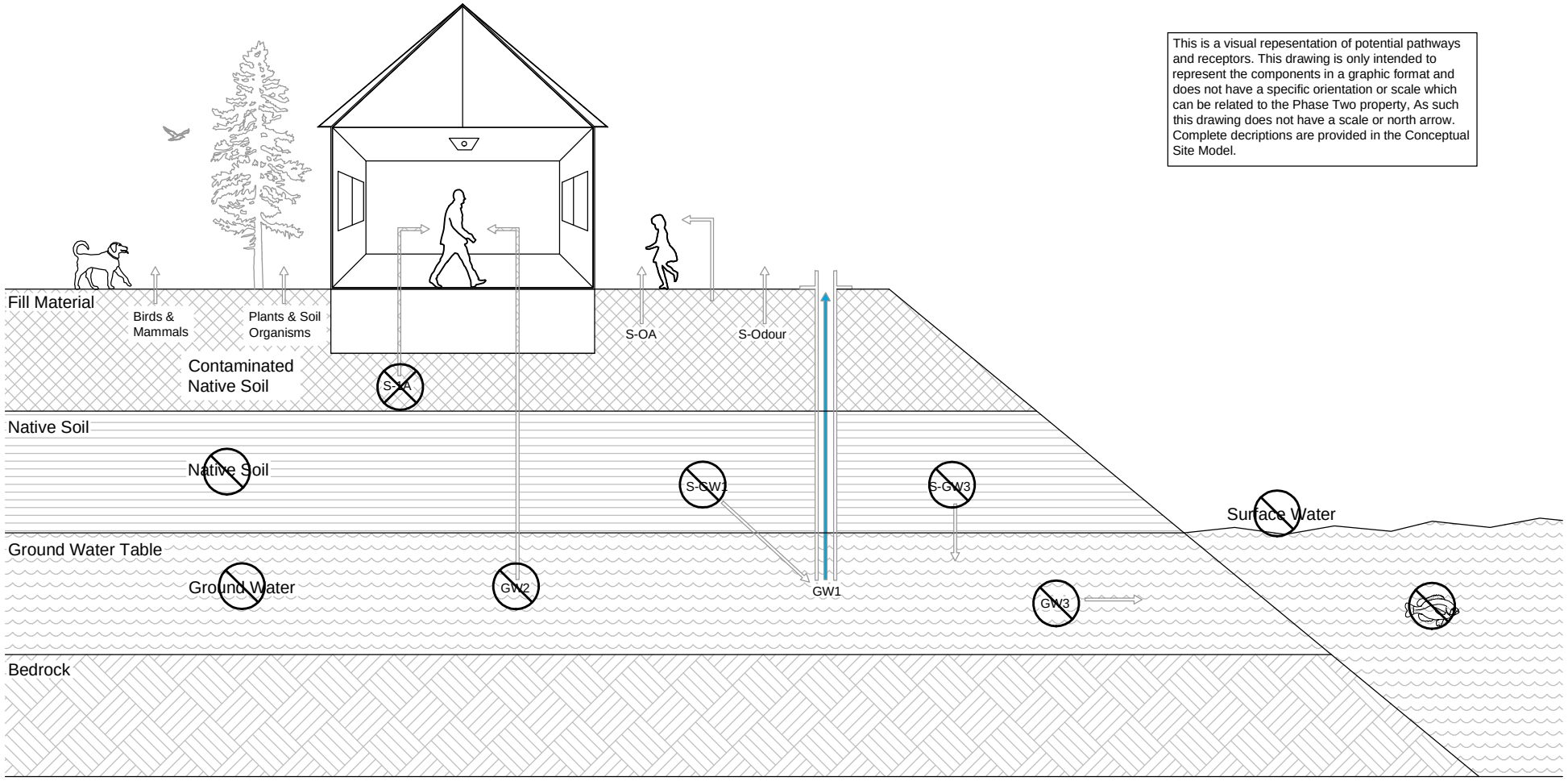
Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GEOLOGICAL CROSS SECTION B-B' WITH PHC IMPACTS IN SOIL**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev.	Scale:	Project No:	Figure No.
	As Shown	18-748-100	8D

Path:j:\-gis\18-748 5150 ninth line\7-misc\cad\figure 9 - exposure pathways and receptors.dwg



S1A - No building present in vicinity of Impacted Soil Exposure Pathway not present

No Exposure Pathway present

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **EXPOSURE PATHWAYS AND RECEPTORS**

Client:	Size:	Approved By:	Drawn By:	Date:
MATTAMY (5150 NINTH LINE) LIMITED	8.5 x 11	R.F	S.Y	February 2019
	Rev.	Scale: N.T.S	Project No: 18-748-100	Figure No. 9

Appendix A

[redacted]

Appendix B

Project Number: 18-748-100 2019-01-01

Mattamy (5150 Ninth Line) Limited
7880 Keele Street, Suite 500
Vaughan, Ontario
L4K 4G7

Attention: Mr. Eric Mueller,
Sent via email: eric.mueller@mattamycorp.com

RE: Sampling and Analysis Plan
Phase Two Environmental Site Assessment
5150 Ninth Line, Mississauga, Ontario

Dear: Mr. Eric Mueller,

Introduction

DS Consultants Limited (DS) is pleased to present the Sampling and Analysis Plan (SAP) for the proposed Phase Two Environmental Site Assessment of 5150 Ninth Line, Mississauga, Ontario (the Site). The purpose of the proposed Phase Two ESA program is to assess the current subsurface environmental conditions in support of the proposed redevelopment of the Site.

The Phase Two ESA will involve intrusive investigation in the areas determined in the Site visit to be Areas of Potential Environmental Concern (APECs), and will be completed in general accordance with O.Reg 153/04. Based on the findings of the field and laboratory analyses, a Phase Two ESA report will be prepared.

Background

Based on the Phase One Environmental Site Assessment completed by DS in September 2018, it is DS's understanding that the Site is a 4.75 hectare (11.73 acres) parcel of land which is currently used for residential and agricultural purposes. The first developed use of the Site is interpreted to be agricultural based on the findings of the Phase One ESA. A total of five (5) potentially contaminating activities were identified on the Phase One Property or on neighbouring properties within the Phase One Study Area which are considered to be contributing to Areas of Potential Environmental Concern (APECs) on the Phase Two Property. A summary of the APECs identified, the potential contaminants of concern, and the media potentially impacted is presented in Table 1 below:

Table 1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	Vicinity of AST.	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks - aboveground fuel storage tank located inside the storage shed on the west side of Site Building A.	On Site	PHCs, VOCs, Metals	Soil, Groundwater
APEC-2	Entire Phase One Property.	PCA-30: Importation of Fill Material of Unknown Quantity.	On Site	PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-3	Entire Phase One Property.	PCA-40: Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications.	On Site	OC Pesticides, metals	Soil
APEC-4	Vicinity of former borehole MW4	PCA N/S: Shallow PHC impacts in soil identified in the 2017 Phase II ESA conducted by SPCL.	On Site	PHCs	Soil
APEC-5	Entire Phase One Property.	PCA N/S: Inferred use of pesticides on historical orchard.	On Site	OC Pesticides, metals	Soil

Notes:

1. PHC (F1-F4) = Petroleum Hydrocarbons in the F1-F4 fraction ranges
2. VOCs = Volatile Organic Compounds
3. PAHs = Polycyclic Aromatic Hydrocarbons

Site Investigation Program

The Site Investigation Program will be completed as follows:

- Public and private underground utilities and services will be cleared prior to commencement of intrusive investigation activities;
- A Health and Safety Plan will be prepared, and all work will be executed safely;
  Ten boreholes will be advanced on the Phase Two Property, to approximate depths ranging from 1.5 to 10.7 mbgs, or until sample refusal depth, or until groundwater is encountered, using a track-mounted drill rig. The soil profile from each borehole will be logged in the field and samples will be screened for total organic vapours (TOV) with a a photoionization detector (PID) and combustible gas detector (CGD). The location of the boreholes will be selected to investigate any APECs identified during the Phase One ESA, as well as to delineate the horizontal and vertical extents of relevant parameters of concern;
- Groundwater monitoring wells will be installed within two of the ten boreholes advanced in order to facilitate the collection of groundwater samples to assess the groundwater quality below the Site and to establish the direction of groundwater flow;
- Based on field screening and visual/olfactory observations, worst-case/representative soil samples from the boreholes will be submitted for laboratory testing of relevant parameters of concern;
- The groundwater levels in the wells will be measured at least 24 hours after well development has been completed, to determine the groundwater elevation. The wells will be surveyed to a geodetic benchmark to determine groundwater flow direction;
- The groundwater wells will be purged to remove stagnant water and sampled for laboratory testing of relevant parameters of concern;
- Both soil and groundwater samples will be submitted for chemical analysis by a CALA laboratory in accordance with the Ontario MOECC standards and requirements of O.Reg. 153/04 under the Environmental Protection Act.

All field equipment is to be calibrated at the start of each field day, in accordance with DS's Standard Operating Procedures (SOPs). Clean, disposable Nitrile™ gloves will be used at each sampling interval to reduce the risk of cross contamination. All non-dedicated equipment (e.g. split spoon sampler, interface probe, etc.) will be decontaminated between each borehole. The equipment will be brushed free of debris, washed with phosphate-free detergent, and then rinsed with analyte free water.

The proposed monitoring wells will be installed using 50 mm inner diameter Schedule 40 polyvinyl chloride (PVC), equipped with 50 mm inner diameter Schedule 40 PVC with #10 slot well screens. A silica sand filter pack will be placed around the well screen and up to 0.61 metres above the top of the well screen. The well annulus will be sealed with hydrated bentonite. All wells will be protected with either a flush mount well casing, or a locked monument style casing.

The proposed analytical program is outlined below (proposed program subject to change as a result of site observations/findings). All soil and groundwater sampling will be carried out in accordance

with DS's SOPs.

Soils:

- Six soil samples for analysis of Metals and other regulated parameters (ORPs);
- Six soil samples for analysis of Petroleum Hydrocarbons in the F1 to F4 fraction ranges (F1-F4), including benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX);

One quality control/quality assurance (QAQC) sample will be submitted for analysis per ten (10) samples analyzed in accordance with O.Reg. 153/04.

Groundwater:

- Four groundwater samples for analysis of Metals and inorganics;

One quality control/quality assurance (QAQC) sample will be submitted for analysis per ten (10) samples analyzed in accordance with O.Reg. 153/04. One laboratory supplied trip blank will be submitted as part of each sample submission event for analysis of volatile parameters (i.e. VOCs, BTEX, PHCs F1-BTEX).

Following receipt of all of the results, a report in accordance with O.Reg. 153/04 will be prepared.

It is noted that if the Phase Two ESA reveals parameter concentrations greater than the applicable standards set out in *Ontario Regulation 153/04,* then additional work (i.e., supplemental delineation, additional drilling, sampling, analysis, and/or site remediation activities) will be deemed necessary prior to RSC filing, should an RSC be required. The costs for any additional work, if necessary, are beyond the current scope of work.

The SAP was created based on the request to complete a Phase Two ESA in support of the proposed redevelopment of the Site. The SAP was compiled to collect data to provide information on soil and/or groundwater quality in each APEC.

Additional delineation may be required following the implementation of this SAP to meet the requirements of O.Reg. 153/04 which requires delineation of all areas where concentrations are above the applicable SCS such as in the following conditions:

- Unexpected contamination not previously discovered, or not related to identified APECs, is discovered which will require further delineation to identify source(s); and
- If the sampling results indicate that the soil and/or groundwater impacts are deeper than initially expected.

We trust that this Sampling and Analysis Plan meets the objectives of the Client. If further assistance is required on this matter please do not hesitate to contact the undersigned.

Yours Very Truly,

DS Consultants Ltd.

Patrick Fioravanti, B.Sc., P.Geo., QP_{ESA}
Environmental Project Manager

Appendix C

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Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE MW19-1

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821304.684 E 601978.502

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-24-2019

REF. NO.: 18-748-100
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
190.5					
190.0	**TOPSOIL:** 150mm				
0.2 / 189.7	**SANDY SILT:** trace clay, brown, moist, reworked	1	SS	2	190
0.8 / 189.0	**CLAYEY SILT:** trace clay, dark brown, moist to very moist, reworked	2	SS	8	
1.5	**SANDY SILT:** trace clay, trace sand, brown and grey, moist, reworked	3	SS	19	189
		4	SS	30	188
187.4					
3.1 / 185.9	**SANDY SILT TILL:** greyish brown, moist	5	SS	32	187
4.6 / 184.4	**CLAYEY SILT TILL:** trace sand, trace gravel, grey, moist	6	SS	12	186
6.1	moist to very moist	7	SS	11	185
182.9					184
7.6 / 181.4	**SILTY CLAY TILL:** trace gravel, grey, very moist	8	SS	7	183
9.1 / 179.8	**CLAYEY SILT TILL** trace sand, trace gravel, grey, moist	9	SS	15	182
10.7 / 179.2	**SILTY CLAY TILL:** trace sand, trace gravel, grey, very moist	10	SS	18	181
11.3	**END OF BOREHOLE**				180

Notes:
1) 50mm monitoring well installed upon completion.

W. L. 184.0 m
Feb 04, 2019

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

	METHANE	GR	SA	SI	CL
1	120ppm HEX, 0ppm IBL				
2	145ppm HEX, 0ppm IBL				
3	95ppm HEX, 0ppm IBL				
4	55ppm HEX, 0ppm IBL				
5	85ppm HEX, 0ppm IBL				
6	45ppm HEX, 0ppm IBL				
7	35ppm HEX, 0ppm IBL				
8	45ppm HEX, 0ppm IBL				
9	30ppm HEX, 0ppm IBL				
10	45ppm HEX, 0ppm IBL				

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

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LOG OF BOREHOLE BH19-2

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821148.928 E 601945.2

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-24-2019

REF. NO.: 18-748-100
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
191.3												
191.0 / 0.0	**TOPSOIL:** 150mm											
0.2 / 190.5	**SANDY SILT:** trace clay, brown, moist, reworked native		1	SS	6		191					60ppm HEX, 0ppm IBL
1 0.8 / 189.8	**SANDY SILT TILL:** trace clay, brown and grey, moist		2	SS	18		190					80ppm HEX, 0ppm IBL
2 1.5 / 188.4	**SANDY SILT TILL:** trace clay, trace gravel, greyish brown, moist		3	SS	22		189					85ppm HEX, 0ppm IBL
			4	SS	34							90ppm HEX, 0ppm IBL
2.9	**END OF BOREHOLE** Notes: 1) Borehole open and dry upon completion. 2) Borehole backfilled with bentonite upon completion.											

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

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LOG OF BOREHOLE BH19-3

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821288.223 E 602026.882

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-24-2019

REF. NO.: 18-748-100
ENCL NO.: 4

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
189.6											
189.4 0.2	**TOPSOIL:** 150mm **SANDY SILT:** trace clay, dark brown, moist, weathered		1	SS	6		189				60ppm HEX, 0ppm IBL
188.8 1 0.8	**SILT TILL:** trace clay, trace sand, brown and grey, moist		2	SS	19						60ppm HEX, 0ppm IBL
2 187.5			3	SS	22		188				50ppm HEX, 0ppm IBL
2.1	**END OF BOREHOLE** Notes: 1) Borehole open and dry upon completion. 2) Borehole backfilled with bentonite upon completion.										

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

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LOG OF BOREHOLE MW19-4

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821190.173 E 601810.369

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-23-2019

REF. NO.: 18-748-100
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
192.8												
192.6	**TOPSOIL:** 150mm											
0.2	**CLAYEY SILT:** trace gravel, brown with orange seams, moist, reworked		1	SS	14							95ppm HEX, 0ppm IBL
192.0							192					
0.8	**SANDY SILT:** trace clay, trace gravel, brown with orange seams, moist, reworked		2	SS	16							70ppm HEX, 0ppm IBL
			3	SS	21		191					65ppm HEX, 0ppm IBL
190.5												
2.3	**SILT TILL:** some sand, trace gravel, greyish brown, moist		4	SS	21		190					70ppm HEX, 0ppm IBL
			5	SS	35							70ppm HEX, 0ppm IBL
188.2							189					
4.6	**SILTY CLAY TILL:** trace sand, trace gravel, grey, very moist		6	SS	18		188					70ppm HEX, 0ppm IBL
187.6												
5.2	**CLAYEY SILT TILL:** grey, very moist						187					
			7	SS	13	W. L. 186.6 m Feb 04, 2019	186					80ppm HEX, 0ppm IBL
	moist		8	SS	11		185					85ppm HEX, 0ppm IBL
184.6												
8.2	**END OF BOREHOLE** Notes: 1) 50mm monitoring well installed upon completion.											

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH19-D1

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821188.497 E 601813.962

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-23-2019

REF. NO.: 18-748-100
ENCL NO.: 8

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
192.9											
192.7	**TOPSOIL** 150mm										
0.2	**CLAYEY SILT:** trace gravel, brown with orange seams, moist, reworked		1	SS	8						60ppm HEX, 0ppm IBL
192.1											
0.8	**SANDY SILT:** trace clay, trace gravel, brown with orange seams, moist, reworked		2	SS	15		192				65ppm HEX, 0ppm IBL
			3	SS	23		191				70ppm HEX, 0ppm IBL
190.8											
2.1	**END OF BOREHOLE**										

Notes:
1) Borehole open and dry upon completion.
2) Borehole backfilled with bentonite upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

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LOG OF BOREHOLE BH19-D2

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821193.931 E 601812.739

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-23-2019

REF. NO.: 18-748-100
ENCL NO.: 9

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
192.8											
192.6	**TOPSOIL** 150mm										
0.2	**CLAYEY SILT:** trace gravel, brown, moist, reworked		1	SS	5						75ppm HEX, 0ppm IBL
192.0							192				
1 0.8	**SANDY SILT TILL:** trace clay, trace gravel, brown, moist		2	SS	17						80ppm HEX, 0ppm IBL
			3	SS	22		191				70ppm HEX, 0ppm IBL
2 190.7											
2.1	**END OF BOREHOLE**										

Notes:
1) Borehole open and dry upon completion.
2) Borehole backfilled with bentonite upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; $\circ^{\varepsilon=3\%}$ Strain at Failure

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

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LOG OF BOREHOLE BH19-D3

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821186.899 E 601808.017

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-23-2019

REF. NO.: 18-748-100
ENCL NO.: 10

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa): ○ UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE & Sensitivity, × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
192.9											
192.8	**TOPSOIL** 150mm										
0.2	**CLAYEY SILT:** some sand to sandy, brown, moist, reworked		1	SS	11						65ppm HEX, 0ppm IBL
192.1											
1 0.8	**SANDY SILT TILL:** trace clay, trace gravel, brown, moist		2	SS	15		192				75ppm HEX, 0ppm IBL
			3	SS	22		191				70ppm HEX, 0ppm IBL
2 190.8											
2.1	**END OF BOREHOLE**										

Notes:
1) Borehole open and dry upon completion.
2) Borehole backfilled with bentonite upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

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LOG OF BOREHOLE BH19-D4

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821192.626 E 601806.278

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-23-2019

REF. NO.: 18-748-100
ENCL NO.: 11

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
192.8											
192.6 0.2	**TOPSOIL** 150mm										
	CLAYEY SILT: trace gravel, brown, moist, reworked		1	SS	14		192				60ppm HEX, 0ppm IBL
192.0 0.8	**SANDY SILT:** trace clay, trace gravel, brown, moist, reworked		2	SS	15						100ppm HEX, 0ppm IBL
			3	SS	24		191				80ppm HEX, 0ppm IBL
190.7 2.1	**END OF BOREHOLE**										

Notes:
1) Borehole open and dry upon completion.
2) Borehole backfilled with bentonite upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; $\circ^{\varepsilon=3\%}$ Strain at Failure

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

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Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH19-5

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821205.549 E 601909.149

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-23-2019

REF. NO.: 18-748-100
ENCL NO.: 6

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
191.7											
191.6 0.0	**TOPSOIL:** 150mm										
0.2	**CLAYEY SILT:** trace gravel, some rootlets, very moist		1	SS	6		191				95ppm HEX, 0ppm IBL
190.9											
1 0.8	**SANDY SILT:** trace clay, brown and grey, moist, weathered		2	SS	34						75ppm HEX, 0ppm IBL
190.2											
1.5	**SANDY SILT TILL:** trace gravel, grey, moist		3	SS	22		190				70ppm HEX, 0ppm IBL
2 189.6											
2.1	**END OF BOREHOLE**										

Notes:
1) Borehole open and dry upon completion.
2) Borehole backfilled with bentonite upon completion.

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH19-6

PROJECT: Phase II Investigation
CLIENT: Mattamy (5150 Ninth Line) Limited
PROJECT LOCATION: 5150 & 5170 Ninth Line, Mississauga, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4821150.513 E 601864.924

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jan-24-2019

REF. NO.: 18-748-100
ENCL NO.: 7

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
192.0											
191.8 0.0	**TOPSOIL:** 150mm										
0.2	**CLAYEY SILT:** trace sand, brown orange and grey seams, moist		1	SS	8						35ppm HEX, 0ppm IBL
191.2											
1 0.8	**CLAYEY SILT:** trace sand, trace gravel, greyish brown, moist		2	SS	12		191				65ppm HEX, 0ppm IBL
190.5											
1.5	**SILT TILL:** trace sand, trace gravel, greyish brown, moist		3	SS	36						60ppm HEX, 0ppm IBL
2 189.9							190				
2.1	**END OF BOREHOLE**										

Notes:
1) Borehole open and dry upon completion.
2) Borehole backfilled with bentonite upon completion.

DS SOIL LOG 5150 NINTH LINE - MATTAMY HOMES.GPJ DS.GDT 19-2-25

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

Appendix D

Maxxam
A Bureau Veritas Group Company

Your Project #: 18-748-100
Your C.O.C. #: 702113-01-01

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/02/11
Report #: R5590583
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B930196
Received: 2019/02/04, 15:17

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	3	N/A	2019/02/07		EPA 8260C m
1,3-Dichloropropene Sum	1	N/A	2019/02/08		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	3	2019/02/08	2019/02/11	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	1	N/A	2019/02/06	CAM SOP-00447	EPA 6020B m
Volatile Organic Compounds and F1 PHCs	3	N/A	2019/02/06	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2019/02/07	CAM SOP-00228	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

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Your Project #: 18-748-100
Your C.O.C. #: 702113-01-01

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/02/11
Report #: R5590583
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B930196
Received: 2019/02/04, 15:17

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ashton Gibson, Project Manager
Email: AGibson@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 DISSOLVED ICPMS METALS (WATER)

Maxxam ID		IXF336		
Sampling Date		2019/02/04 12:00		
COC Number		702113-01-01		
	UNITS	MW19-1	RDL	QC Batch
Metals				
Dissolved Antimony (Sb)	ug/L	1.4	0.50	5961095
Dissolved Arsenic (As)	ug/L	2.8	1.0	5961095
Dissolved Barium (Ba)	ug/L	45	2.0	5961095
Dissolved Beryllium (Be)	ug/L	<0.50	0.50	5961095
Dissolved Boron (B)	ug/L	220	10	5961095
Dissolved Cadmium (Cd)	ug/L	<0.10	0.10	5961095
Dissolved Chromium (Cr)	ug/L	48	5.0	5961095
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	5961095
Dissolved Copper (Cu)	ug/L	9.6	1.0	5961095
Dissolved Lead (Pb)	ug/L	<0.50	0.50	5961095
Dissolved Molybdenum (Mo)	ug/L	38	0.50	5961095
Dissolved Nickel (Ni)	ug/L	1.7	1.0	5961095
Dissolved Selenium (Se)	ug/L	2.3	2.0	5961095
Dissolved Silver (Ag)	ug/L	<0.10	0.10	5961095
Dissolved Sodium (Na)	ug/L	180000	100	5961095
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	5961095
Dissolved Uranium (U)	ug/L	4.2	0.10	5961095
Dissolved Vanadium (V)	ug/L	4.7	0.50	5961095
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	5961095

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		IXF336	IXF337	IXF338		
Sampling Date		2019/02/04 12:00	2019/02/04 01:30	2019/02/04		
COC Number		702113-01-01	702113-01-01	702113-01-01		
	UNITS	MW19-1	MW19-4	DUP-1	RDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	0.50	5960303
Volatile Organics						
Acetone (2-Propanone)	ug/L	22	28	31	10	5961124
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	5961124
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Chloroform	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	1.0	5961124
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	5961124
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	0.20	5961124
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	0.30	5961124
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	0.40	5961124
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Hexane	ug/L	<1.0	<1.0	<1.0	1.0	5961124
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	5961124
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	10	5961124
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	5961124
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	5961124

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		IXF336	IXF337	IXF338		
Sampling Date		2019/02/04 12:00	2019/02/04 01:30	2019/02/04		
COC Number		702113-01-01	702113-01-01	702113-01-01		
	UNITS	MW19-1	MW19-4	DUP-1	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Toluene	ug/L	<0.20	0.46	0.46	0.20	5961124
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	5961124
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Trichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	5961124
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	5961124
F1 (C6-C10)	ug/L	<25	<25	<25	25	5961124
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	25	5961124
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	5966475
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	200	5966475
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	200	5966475
Reached Baseline at C50	ug/L	Yes	Yes	Yes		5966475
Surrogate Recovery (%)						
o-Terphenyl	%	94	98	90		5966475
4-Bromofluorobenzene	%	93	92	92		5961124
D4-1,2-Dichloroethane	%	109	109	108		5961124
D8-Toluene	%	91	91	90		5961124

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		IXF339		
Sampling Date				
COC Number		702113-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	5960303
Volatile Organics				
Acetone (2-Propanone)	ug/L	<10	10	5960290
Benzene	ug/L	<0.20	0.20	5960290
Bromodichloromethane	ug/L	<0.50	0.50	5960290
Bromoform	ug/L	<1.0	1.0	5960290
Bromomethane	ug/L	<0.50	0.50	5960290
Carbon Tetrachloride	ug/L	<0.20	0.20	5960290
Chlorobenzene	ug/L	<0.20	0.20	5960290
Chloroform	ug/L	<0.20	0.20	5960290
Dibromochloromethane	ug/L	<0.50	0.50	5960290
1,2-Dichlorobenzene	ug/L	<0.50	0.50	5960290
1,3-Dichlorobenzene	ug/L	<0.50	0.50	5960290
1,4-Dichlorobenzene	ug/L	<0.50	0.50	5960290
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	5960290
1,1-Dichloroethane	ug/L	<0.20	0.20	5960290
1,2-Dichloroethane	ug/L	<0.50	0.50	5960290
1,1-Dichloroethylene	ug/L	<0.20	0.20	5960290
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	5960290
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	5960290
1,2-Dichloropropane	ug/L	<0.20	0.20	5960290
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	5960290
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	5960290
Ethylbenzene	ug/L	<0.20	0.20	5960290
Ethylene Dibromide	ug/L	<0.20	0.20	5960290
Hexane	ug/L	<1.0	1.0	5960290
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	5960290
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	5960290
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	5960290
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	5960290
Styrene	ug/L	<0.50	0.50	5960290
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	5960290

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		IXF339		
Sampling Date				
COC Number		702113-01-01		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	5960290
Tetrachloroethylene	ug/L	<0.20	0.20	5960290
Toluene	ug/L	<0.20	0.20	5960290
1,1,1-Trichloroethane	ug/L	<0.20	0.20	5960290
1,1,2-Trichloroethane	ug/L	<0.50	0.50	5960290
Trichloroethylene	ug/L	<0.20	0.20	5960290
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	5960290
Vinyl Chloride	ug/L	<0.20	0.20	5960290
p+m-Xylene	ug/L	<0.20	0.20	5960290
o-Xylene	ug/L	<0.20	0.20	5960290
Total Xylenes	ug/L	<0.20	0.20	5960290
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	99		5960290
D4-1,2-Dichloroethane	%	99		5960290
D8-Toluene	%	95		5960290

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

TEST SUMMARY

Maxxam ID: IXF336
Sample ID: MW19-1
Matrix: Water

Collected: 2019/02/04
Shipped:
Received: 2019/02/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5960303	N/A	2019/02/07	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5966475	2019/02/08	2019/02/11	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	5961095	N/A	2019/02/06	Nan Raykha
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5961124	N/A	2019/02/06	Denis Reid

Maxxam ID: IXF337
Sample ID: MW19-4
Matrix: Water

Collected: 2019/02/04
Shipped:
Received: 2019/02/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5960303	N/A	2019/02/07	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5966475	2019/02/08	2019/02/11	(Kent) Maolin Li
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5961124	N/A	2019/02/06	Denis Reid

Maxxam ID: IXF338
Sample ID: DUP-1
Matrix: Water

Collected: 2019/02/04
Shipped:
Received: 2019/02/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5960303	N/A	2019/02/07	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5966475	2019/02/08	2019/02/11	(Kent) Maolin Li
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5961124	N/A	2019/02/06	Denis Reid

Maxxam ID: IXF339
Sample ID: TRIP BLANK
Matrix: Water

Collected:
Shipped:
Received: 2019/02/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5960303	N/A	2019/02/08	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5960290	N/A	2019/02/07	Manpreet Sarao

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	12.3°C

All 100mL amber glass bottles for F2-F4 analysis contained visible sediment, which was included in the extraction.
All 40mL vials for F1BTEX and VOC analyses contained visible sediment except for Trip Blank sample.

Results relate only to the items tested.

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Maxxam Job #: B930196
Report Date: 2019/02/11

QUALITY ASSURANCE REPORT

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5960290	4-Bromofluorobenzene	2019/02/07	101	70 - 130	101	70 - 130	99	%		
5960290	D4-1,2-Dichloroethane	2019/02/07	97	70 - 130	92	70 - 130	94	%		
5960290	D8-Toluene	2019/02/07	100	70 - 130	102	70 - 130	97	%		
5961124	4-Bromofluorobenzene	2019/02/06	104	70 - 130	102	70 - 130	93	%		
5961124	D4-1,2-Dichloroethane	2019/02/06	102	70 - 130	98	70 - 130	105	%		
5961124	D8-Toluene	2019/02/06	107	70 - 130	107	70 - 130	92	%		
5966475	o-Terphenyl	2019/02/11	114	60 - 130	116	60 - 130	99	%		
5960290	1,1,1,2-Tetrachloroethane	2019/02/07	95	70 - 130	93	70 - 130	<0.50	ug/L		
5960290	1,1,1-Trichloroethane	2019/02/07	95	70 - 130	94	70 - 130	<0.20	ug/L		
5960290	1,1,2,2-Tetrachloroethane	2019/02/07	96	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
5960290	1,1,2-Trichloroethane	2019/02/07	92	70 - 130	86	70 - 130	<0.50	ug/L		
5960290	1,1-Dichloroethane	2019/02/07	96	70 - 130	93	70 - 130	<0.20	ug/L		
5960290	1,1-Dichloroethylene	2019/02/07	96	70 - 130	96	70 - 130	<0.20	ug/L		
5960290	1,2-Dichlorobenzene	2019/02/07	95	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5960290	1,2-Dichloroethane	2019/02/07	93	70 - 130	86	70 - 130	<0.50	ug/L		
5960290	1,2-Dichloropropane	2019/02/07	95	70 - 130	91	70 - 130	<0.20	ug/L		
5960290	1,3-Dichlorobenzene	2019/02/07	97	70 - 130	97	70 - 130	<0.50	ug/L		
5960290	1,4-Dichlorobenzene	2019/02/07	97	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5960290	Acetone (2-Propanone)	2019/02/07	104	60 - 140	86	60 - 140	<10	ug/L		
5960290	Benzene	2019/02/07	95	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5960290	Bromodichloromethane	2019/02/07	95	70 - 130	90	70 - 130	<0.50	ug/L		
5960290	Bromoform	2019/02/07	95	70 - 130	89	70 - 130	<1.0	ug/L		
5960290	Bromomethane	2019/02/07	103	60 - 140	99	60 - 140	<0.50	ug/L		
5960290	Carbon Tetrachloride	2019/02/07	96	70 - 130	96	70 - 130	<0.20	ug/L		
5960290	Chlorobenzene	2019/02/07	94	70 - 130	92	70 - 130	<0.20	ug/L		
5960290	Chloroform	2019/02/07	95	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5960290	cis-1,2-Dichloroethylene	2019/02/07	96	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5960290	cis-1,3-Dichloropropene	2019/02/07	103	70 - 130	95	70 - 130	<0.30	ug/L		
5960290	Dibromochloromethane	2019/02/07	96	70 - 130	91	70 - 130	<0.50	ug/L		
5960290	Dichlorodifluoromethane (FREON 12)	2019/02/07	108	60 - 140	108	60 - 140	<1.0	ug/L		
5960290	Ethylbenzene	2019/02/07	95	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5960290	Ethylene Dibromide	2019/02/07	96	70 - 130	89	70 - 130	<0.20	ug/L		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5960290	Hexane	2019/02/07	98	70 - 130	98	70 - 130	<1.0	ug/L		
5960290	Methyl Ethyl Ketone (2-Butanone)	2019/02/07	105	60 - 140	88	60 - 140	<10	ug/L		
5960290	Methyl Isobutyl Ketone	2019/02/07	102	70 - 130	90	70 - 130	<5.0	ug/L		
5960290	Methyl t-butyl ether (MTBE)	2019/02/07	94	70 - 130	89	70 - 130	<0.50	ug/L		
5960290	Methylene Chloride(Dichloromethane)	2019/02/07	90	70 - 130	86	70 - 130	<2.0	ug/L	NC	30
5960290	o-Xylene	2019/02/07	92	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5960290	p+m-Xylene	2019/02/07	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5960290	Styrene	2019/02/07	97	70 - 130	96	70 - 130	<0.50	ug/L		
5960290	Tetrachloroethylene	2019/02/07	96	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5960290	Toluene	2019/02/07	94	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5960290	Total Xylenes	2019/02/07					<0.20	ug/L	NC	30
5960290	trans-1,2-Dichloroethylene	2019/02/07	96	70 - 130	94	70 - 130	<0.50	ug/L		
5960290	trans-1,3-Dichloropropene	2019/02/07	102	70 - 130	94	70 - 130	<0.40	ug/L	NC	30
5960290	Trichloroethylene	2019/02/07	96	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5960290	Trichlorofluoromethane (FREON 11)	2019/02/07	97	70 - 130	97	70 - 130	<0.50	ug/L		
5960290	Vinyl Chloride	2019/02/07	103	70 - 130	102	70 - 130	<0.20	ug/L		
5961095	Dissolved Antimony (Sb)	2019/02/06	108	80 - 120	105	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Arsenic (As)	2019/02/06	103	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
5961095	Dissolved Barium (Ba)	2019/02/06	104	80 - 120	104	80 - 120	<2.0	ug/L	1.8	20
5961095	Dissolved Beryllium (Be)	2019/02/06	101	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Boron (B)	2019/02/06	NC	80 - 120	95	80 - 120	<10	ug/L	0.093	20
5961095	Dissolved Cadmium (Cd)	2019/02/06	104	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
5961095	Dissolved Chromium (Cr)	2019/02/06	101	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
5961095	Dissolved Cobalt (Co)	2019/02/06	101	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Copper (Cu)	2019/02/06	107	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
5961095	Dissolved Lead (Pb)	2019/02/06	95	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Molybdenum (Mo)	2019/02/06	114	80 - 120	105	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Nickel (Ni)	2019/02/06	97	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
5961095	Dissolved Selenium (Se)	2019/02/06	110	80 - 120	104	80 - 120	<2.0	ug/L	NC	20
5961095	Dissolved Silver (Ag)	2019/02/06	42 (1)	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
5961095	Dissolved Sodium (Na)	2019/02/06	NC	80 - 120	96	80 - 120	<100	ug/L	2.4	20
5961095	Dissolved Thallium (Tl)	2019/02/06	95	80 - 120	100	80 - 120	<0.050	ug/L	NC	20

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Maxxam Job #: B930196
Report Date: 2019/02/11

QUALITY ASSURANCE REPORT(CONT'D)

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5961095	Dissolved Uranium (U)	2019/02/06	98	80 - 120	100	80 - 120	<0.10	ug/L	7.3	20
5961095	Dissolved Vanadium (V)	2019/02/06	105	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Zinc (Zn)	2019/02/06	97	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
5961124	1,1,1,2-Tetrachloroethane	2019/02/06	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5961124	1,1,1-Trichloroethane	2019/02/06	93	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5961124	1,1,2,2-Tetrachloroethane	2019/02/06	98	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5961124	1,1,2-Trichloroethane	2019/02/06	99	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5961124	1,1-Dichloroethane	2019/02/06	96	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5961124	1,1-Dichloroethylene	2019/02/06	92	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5961124	1,2-Dichlorobenzene	2019/02/06	96	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5961124	1,2-Dichloroethane	2019/02/06	98	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5961124	1,2-Dichloropropane	2019/02/06	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5961124	1,3-Dichlorobenzene	2019/02/06	97	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5961124	1,4-Dichlorobenzene	2019/02/06	100	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
5961124	Acetone (2-Propanone)	2019/02/06	109	60 - 140	86	60 - 140	<10	ug/L	NC	30
5961124	Benzene	2019/02/06	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5961124	Bromodichloromethane	2019/02/06	97	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5961124	Bromoform	2019/02/06	97	70 - 130	93	70 - 130	<1.0	ug/L	NC	30
5961124	Bromomethane	2019/02/06	87	60 - 140	93	60 - 140	<0.50	ug/L	NC	30
5961124	Carbon Tetrachloride	2019/02/06	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5961124	Chlorobenzene	2019/02/06	98	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5961124	Chloroform	2019/02/06	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5961124	cis-1,2-Dichloroethylene	2019/02/06	95	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5961124	cis-1,3-Dichloropropene	2019/02/06	86	70 - 130	97	70 - 130	<0.30	ug/L	NC	30
5961124	Dibromochloromethane	2019/02/06	98	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5961124	Dichlorodifluoromethane (FREON 12)	2019/02/06	65	60 - 140	75	60 - 140	<1.0	ug/L	NC	30
5961124	Ethylbenzene	2019/02/06	97	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5961124	Ethylene Dibromide	2019/02/06	100	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5961124	F1 (C6-C10) - BTEX	2019/02/06					<25	ug/L	NC	30
5961124	F1 (C6-C10)	2019/02/06	103	60 - 140	98	60 - 140	<25	ug/L	NC	30
5961124	Hexane	2019/02/06	94	70 - 130	96	70 - 130	<1.0	ug/L	NC	30
5961124	Methyl Ethyl Ketone (2-Butanone)	2019/02/06	115	60 - 140	95	60 - 140	<10	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5961124	Methyl Isobutyl Ketone	2019/02/06	87	70 - 130	81	70 - 130	<5.0	ug/L	NC	30
5961124	Methyl t-butyl ether (MTBE)	2019/02/06	93	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5961124	Methylene Chloride(Dichloromethane)	2019/02/06	91	70 - 130	87	70 - 130	<2.0	ug/L	NC	30
5961124	o-Xylene	2019/02/06	99	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5961124	p+m-Xylene	2019/02/06	99	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5961124	Styrene	2019/02/06	102	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
5961124	Tetrachloroethylene	2019/02/06	97	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5961124	Toluene	2019/02/06	99	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5961124	Total Xylenes	2019/02/06					<0.20	ug/L	NC	30
5961124	trans-1,2-Dichloroethylene	2019/02/06	95	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5961124	trans-1,3-Dichloropropene	2019/02/06	88	70 - 130	100	70 - 130	<0.40	ug/L	NC	30
5961124	Trichloroethylene	2019/02/06	97	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5961124	Trichlorofluoromethane (FREON 11)	2019/02/06	91	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5961124	Vinyl Chloride	2019/02/06	80	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5966475	F2 (C10-C16 Hydrocarbons)	2019/02/11	116	50 - 130	114	60 - 130	<100	ug/L	NC	30
5966475	F3 (C16-C34 Hydrocarbons)	2019/02/11	NC	50 - 130	114	60 - 130	<200	ug/L	NC	30
5966475	F4 (C34-C50 Hydrocarbons)	2019/02/11	115	50 - 130	115	60 - 130	<200	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam
A Bureau Veritas Group Company

Your Project #: 18-748-100
Your C.O.C. #: 702113-01-01

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/02/11
Report #: R5590583
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B930196
Received: 2019/02/04, 15:17

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	3	N/A	2019/02/07		EPA 8260C m
1,3-Dichloropropene Sum	1	N/A	2019/02/08		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	3	2019/02/08	2019/02/11	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	1	N/A	2019/02/06	CAM SOP-00447	EPA 6020B m
Volatile Organic Compounds and F1 PHCs	3	N/A	2019/02/06	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2019/02/07	CAM SOP-00228	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

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Your Project #: 18-748-100
Your C.O.C. #: 702113-01-01

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/02/11
Report #: R5590583
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B930196
Received: 2019/02/04, 15:17

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ashton Gibson, Project Manager
Email: AGibson@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 DISSOLVED ICPMS METALS (WATER)

Maxxam ID		IXF336		
Sampling Date		2019/02/04 12:00		
COC Number		702113-01-01		
	UNITS	MW19-1	RDL	QC Batch
Metals				
Dissolved Antimony (Sb)	ug/L	1.4	0.50	5961095
Dissolved Arsenic (As)	ug/L	2.8	1.0	5961095
Dissolved Barium (Ba)	ug/L	45	2.0	5961095
Dissolved Beryllium (Be)	ug/L	<0.50	0.50	5961095
Dissolved Boron (B)	ug/L	220	10	5961095
Dissolved Cadmium (Cd)	ug/L	<0.10	0.10	5961095
Dissolved Chromium (Cr)	ug/L	48	5.0	5961095
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	5961095
Dissolved Copper (Cu)	ug/L	9.6	1.0	5961095
Dissolved Lead (Pb)	ug/L	<0.50	0.50	5961095
Dissolved Molybdenum (Mo)	ug/L	38	0.50	5961095
Dissolved Nickel (Ni)	ug/L	1.7	1.0	5961095
Dissolved Selenium (Se)	ug/L	2.3	2.0	5961095
Dissolved Silver (Ag)	ug/L	<0.10	0.10	5961095
Dissolved Sodium (Na)	ug/L	180000	100	5961095
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	5961095
Dissolved Uranium (U)	ug/L	4.2	0.10	5961095
Dissolved Vanadium (V)	ug/L	4.7	0.50	5961095
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	5961095

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		IXF336	IXF337	IXF338		
Sampling Date		2019/02/04 12:00	2019/02/04 01:30	2019/02/04		
COC Number		702113-01-01	702113-01-01	702113-01-01		
	UNITS	MW19-1	MW19-4	DUP-1	RDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	0.50	5960303
Volatile Organics						
Acetone (2-Propanone)	ug/L	22	28	31	10	5961124
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	5961124
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Chloroform	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	1.0	5961124
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	5961124
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	0.20	5961124
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	0.30	5961124
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	0.40	5961124
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Hexane	ug/L	<1.0	<1.0	<1.0	1.0	5961124
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	5961124
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	10	5961124
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	5961124
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	5961124

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		IXF336	IXF337	IXF338		
Sampling Date		2019/02/04 12:00	2019/02/04 01:30	2019/02/04		
COC Number		702113-01-01	702113-01-01	702113-01-01		
	UNITS	MW19-1	MW19-4	DUP-1	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Toluene	ug/L	<0.20	0.46	0.46	0.20	5961124
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	5961124
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Trichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	0.50	5961124
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	5961124
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	5961124
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	5961124
F1 (C6-C10)	ug/L	<25	<25	<25	25	5961124
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	25	5961124
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	5966475
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	200	5966475
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	200	5966475
Reached Baseline at C50	ug/L	Yes	Yes	Yes		5966475
Surrogate Recovery (%)						
o-Terphenyl	%	94	98	90		5966475
4-Bromofluorobenzene	%	93	92	92		5961124
D4-1,2-Dichloroethane	%	109	109	108		5961124
D8-Toluene	%	91	91	90		5961124

RDL = Reportable Detection Limit
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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		IXF339		
Sampling Date				
COC Number		702113-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	5960303
Volatile Organics				
Acetone (2-Propanone)	ug/L	<10	10	5960290
Benzene	ug/L	<0.20	0.20	5960290
Bromodichloromethane	ug/L	<0.50	0.50	5960290
Bromoform	ug/L	<1.0	1.0	5960290
Bromomethane	ug/L	<0.50	0.50	5960290
Carbon Tetrachloride	ug/L	<0.20	0.20	5960290
Chlorobenzene	ug/L	<0.20	0.20	5960290
Chloroform	ug/L	<0.20	0.20	5960290
Dibromochloromethane	ug/L	<0.50	0.50	5960290
1,2-Dichlorobenzene	ug/L	<0.50	0.50	5960290
1,3-Dichlorobenzene	ug/L	<0.50	0.50	5960290
1,4-Dichlorobenzene	ug/L	<0.50	0.50	5960290
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	5960290
1,1-Dichloroethane	ug/L	<0.20	0.20	5960290
1,2-Dichloroethane	ug/L	<0.50	0.50	5960290
1,1-Dichloroethylene	ug/L	<0.20	0.20	5960290
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	5960290
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	5960290
1,2-Dichloropropane	ug/L	<0.20	0.20	5960290
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	5960290
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	5960290
Ethylbenzene	ug/L	<0.20	0.20	5960290
Ethylene Dibromide	ug/L	<0.20	0.20	5960290
Hexane	ug/L	<1.0	1.0	5960290
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	5960290
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	5960290
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	5960290
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	5960290
Styrene	ug/L	<0.50	0.50	5960290
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	5960290

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		IXF339		
Sampling Date				
COC Number		702113-01-01		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	5960290
Tetrachloroethylene	ug/L	<0.20	0.20	5960290
Toluene	ug/L	<0.20	0.20	5960290
1,1,1-Trichloroethane	ug/L	<0.20	0.20	5960290
1,1,2-Trichloroethane	ug/L	<0.50	0.50	5960290
Trichloroethylene	ug/L	<0.20	0.20	5960290
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	5960290
Vinyl Chloride	ug/L	<0.20	0.20	5960290
p+m-Xylene	ug/L	<0.20	0.20	5960290
o-Xylene	ug/L	<0.20	0.20	5960290
Total Xylenes	ug/L	<0.20	0.20	5960290
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	99		5960290
D4-1,2-Dichloroethane	%	99		5960290
D8-Toluene	%	95		5960290

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

TEST SUMMARY

Maxxam ID: IXF336
Sample ID: MW19-1
Matrix: Water

Collected: 2019/02/04
Shipped:
Received: 2019/02/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5960303	N/A	2019/02/07	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5966475	2019/02/08	2019/02/11	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	5961095	N/A	2019/02/06	Nan Raykha
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5961124	N/A	2019/02/06	Denis Reid

Maxxam ID: IXF337
Sample ID: MW19-4
Matrix: Water

Collected: 2019/02/04
Shipped:
Received: 2019/02/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5960303	N/A	2019/02/07	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5966475	2019/02/08	2019/02/11	(Kent) Maolin Li
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5961124	N/A	2019/02/06	Denis Reid

Maxxam ID: IXF338
Sample ID: DUP-1
Matrix: Water

Collected: 2019/02/04
Shipped:
Received: 2019/02/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5960303	N/A	2019/02/07	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5966475	2019/02/08	2019/02/11	(Kent) Maolin Li
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5961124	N/A	2019/02/06	Denis Reid

Maxxam ID: IXF339
Sample ID: TRIP BLANK
Matrix: Water

Collected:
Shipped:
Received: 2019/02/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5960303	N/A	2019/02/08	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5960290	N/A	2019/02/07	Manpreet Sarao

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Maxxam Job #: B930196
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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	12.3°C

All 100mL amber glass bottles for F2-F4 analysis contained visible sediment, which was included in the extraction.
All 40mL vials for F1BTEX and VOC analyses contained visible sediment except for Trip Blank sample.

Results relate only to the items tested.

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Maxxam Job #: B930196
Report Date: 2019/02/11

QUALITY ASSURANCE REPORT

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5960290	4-Bromofluorobenzene	2019/02/07	101	70 - 130	101	70 - 130	99	%		
5960290	D4-1,2-Dichloroethane	2019/02/07	97	70 - 130	92	70 - 130	94	%		
5960290	D8-Toluene	2019/02/07	100	70 - 130	102	70 - 130	97	%		
5961124	4-Bromofluorobenzene	2019/02/06	104	70 - 130	102	70 - 130	93	%		
5961124	D4-1,2-Dichloroethane	2019/02/06	102	70 - 130	98	70 - 130	105	%		
5961124	D8-Toluene	2019/02/06	107	70 - 130	107	70 - 130	92	%		
5966475	o-Terphenyl	2019/02/11	114	60 - 130	116	60 - 130	99	%		
5960290	1,1,1,2-Tetrachloroethane	2019/02/07	95	70 - 130	93	70 - 130	<0.50	ug/L		
5960290	1,1,1-Trichloroethane	2019/02/07	95	70 - 130	94	70 - 130	<0.20	ug/L		
5960290	1,1,2,2-Tetrachloroethane	2019/02/07	96	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
5960290	1,1,2-Trichloroethane	2019/02/07	92	70 - 130	86	70 - 130	<0.50	ug/L		
5960290	1,1-Dichloroethane	2019/02/07	96	70 - 130	93	70 - 130	<0.20	ug/L		
5960290	1,1-Dichloroethylene	2019/02/07	96	70 - 130	96	70 - 130	<0.20	ug/L		
5960290	1,2-Dichlorobenzene	2019/02/07	95	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5960290	1,2-Dichloroethane	2019/02/07	93	70 - 130	86	70 - 130	<0.50	ug/L		
5960290	1,2-Dichloropropane	2019/02/07	95	70 - 130	91	70 - 130	<0.20	ug/L		
5960290	1,3-Dichlorobenzene	2019/02/07	97	70 - 130	97	70 - 130	<0.50	ug/L		
5960290	1,4-Dichlorobenzene	2019/02/07	97	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5960290	Acetone (2-Propanone)	2019/02/07	104	60 - 140	86	60 - 140	<10	ug/L		
5960290	Benzene	2019/02/07	95	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5960290	Bromodichloromethane	2019/02/07	95	70 - 130	90	70 - 130	<0.50	ug/L		
5960290	Bromoform	2019/02/07	95	70 - 130	89	70 - 130	<1.0	ug/L		
5960290	Bromomethane	2019/02/07	103	60 - 140	99	60 - 140	<0.50	ug/L		
5960290	Carbon Tetrachloride	2019/02/07	96	70 - 130	96	70 - 130	<0.20	ug/L		
5960290	Chlorobenzene	2019/02/07	94	70 - 130	92	70 - 130	<0.20	ug/L		
5960290	Chloroform	2019/02/07	95	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5960290	cis-1,2-Dichloroethylene	2019/02/07	96	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5960290	cis-1,3-Dichloropropene	2019/02/07	103	70 - 130	95	70 - 130	<0.30	ug/L		
5960290	Dibromochloromethane	2019/02/07	96	70 - 130	91	70 - 130	<0.50	ug/L		
5960290	Dichlorodifluoromethane (FREON 12)	2019/02/07	108	60 - 140	108	60 - 140	<1.0	ug/L		
5960290	Ethylbenzene	2019/02/07	95	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5960290	Ethylene Dibromide	2019/02/07	96	70 - 130	89	70 - 130	<0.20	ug/L		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5960290	Hexane	2019/02/07	98	70 - 130	98	70 - 130	<1.0	ug/L		
5960290	Methyl Ethyl Ketone (2-Butanone)	2019/02/07	105	60 - 140	88	60 - 140	<10	ug/L		
5960290	Methyl Isobutyl Ketone	2019/02/07	102	70 - 130	90	70 - 130	<5.0	ug/L		
5960290	Methyl t-butyl ether (MTBE)	2019/02/07	94	70 - 130	89	70 - 130	<0.50	ug/L		
5960290	Methylene Chloride(Dichloromethane)	2019/02/07	90	70 - 130	86	70 - 130	<2.0	ug/L	NC	30
5960290	o-Xylene	2019/02/07	92	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5960290	p+m-Xylene	2019/02/07	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5960290	Styrene	2019/02/07	97	70 - 130	96	70 - 130	<0.50	ug/L		
5960290	Tetrachloroethylene	2019/02/07	96	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5960290	Toluene	2019/02/07	94	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5960290	Total Xylenes	2019/02/07					<0.20	ug/L	NC	30
5960290	trans-1,2-Dichloroethylene	2019/02/07	96	70 - 130	94	70 - 130	<0.50	ug/L		
5960290	trans-1,3-Dichloropropene	2019/02/07	102	70 - 130	94	70 - 130	<0.40	ug/L	NC	30
5960290	Trichloroethylene	2019/02/07	96	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5960290	Trichlorofluoromethane (FREON 11)	2019/02/07	97	70 - 130	97	70 - 130	<0.50	ug/L		
5960290	Vinyl Chloride	2019/02/07	103	70 - 130	102	70 - 130	<0.20	ug/L		
5961095	Dissolved Antimony (Sb)	2019/02/06	108	80 - 120	105	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Arsenic (As)	2019/02/06	103	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
5961095	Dissolved Barium (Ba)	2019/02/06	104	80 - 120	104	80 - 120	<2.0	ug/L	1.8	20
5961095	Dissolved Beryllium (Be)	2019/02/06	101	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Boron (B)	2019/02/06	NC	80 - 120	95	80 - 120	<10	ug/L	0.093	20
5961095	Dissolved Cadmium (Cd)	2019/02/06	104	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
5961095	Dissolved Chromium (Cr)	2019/02/06	101	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
5961095	Dissolved Cobalt (Co)	2019/02/06	101	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Copper (Cu)	2019/02/06	107	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
5961095	Dissolved Lead (Pb)	2019/02/06	95	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Molybdenum (Mo)	2019/02/06	114	80 - 120	105	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Nickel (Ni)	2019/02/06	97	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
5961095	Dissolved Selenium (Se)	2019/02/06	110	80 - 120	104	80 - 120	<2.0	ug/L	NC	20
5961095	Dissolved Silver (Ag)	2019/02/06	42 (1)	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
5961095	Dissolved Sodium (Na)	2019/02/06	NC	80 - 120	96	80 - 120	<100	ug/L	2.4	20
5961095	Dissolved Thallium (Tl)	2019/02/06	95	80 - 120	100	80 - 120	<0.050	ug/L	NC	20

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Maxxam Job #: B930196
Report Date: 2019/02/11

QUALITY ASSURANCE REPORT(CONT'D)

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5961095	Dissolved Uranium (U)	2019/02/06	98	80 - 120	100	80 - 120	<0.10	ug/L	7.3	20
5961095	Dissolved Vanadium (V)	2019/02/06	105	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
5961095	Dissolved Zinc (Zn)	2019/02/06	97	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
5961124	1,1,1,2-Tetrachloroethane	2019/02/06	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5961124	1,1,1-Trichloroethane	2019/02/06	93	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5961124	1,1,2,2-Tetrachloroethane	2019/02/06	98	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5961124	1,1,2-Trichloroethane	2019/02/06	99	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5961124	1,1-Dichloroethane	2019/02/06	96	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5961124	1,1-Dichloroethylene	2019/02/06	92	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5961124	1,2-Dichlorobenzene	2019/02/06	96	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5961124	1,2-Dichloroethane	2019/02/06	98	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5961124	1,2-Dichloropropane	2019/02/06	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5961124	1,3-Dichlorobenzene	2019/02/06	97	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5961124	1,4-Dichlorobenzene	2019/02/06	100	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
5961124	Acetone (2-Propanone)	2019/02/06	109	60 - 140	86	60 - 140	<10	ug/L	NC	30
5961124	Benzene	2019/02/06	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5961124	Bromodichloromethane	2019/02/06	97	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5961124	Bromoform	2019/02/06	97	70 - 130	93	70 - 130	<1.0	ug/L	NC	30
5961124	Bromomethane	2019/02/06	87	60 - 140	93	60 - 140	<0.50	ug/L	NC	30
5961124	Carbon Tetrachloride	2019/02/06	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5961124	Chlorobenzene	2019/02/06	98	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5961124	Chloroform	2019/02/06	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5961124	cis-1,2-Dichloroethylene	2019/02/06	95	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5961124	cis-1,3-Dichloropropene	2019/02/06	86	70 - 130	97	70 - 130	<0.30	ug/L	NC	30
5961124	Dibromochloromethane	2019/02/06	98	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5961124	Dichlorodifluoromethane (FREON 12)	2019/02/06	65	60 - 140	75	60 - 140	<1.0	ug/L	NC	30
5961124	Ethylbenzene	2019/02/06	97	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5961124	Ethylene Dibromide	2019/02/06	100	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5961124	F1 (C6-C10) - BTEX	2019/02/06					<25	ug/L	NC	30
5961124	F1 (C6-C10)	2019/02/06	103	60 - 140	98	60 - 140	<25	ug/L	NC	30
5961124	Hexane	2019/02/06	94	70 - 130	96	70 - 130	<1.0	ug/L	NC	30
5961124	Methyl Ethyl Ketone (2-Butanone)	2019/02/06	115	60 - 140	95	60 - 140	<10	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5961124	Methyl Isobutyl Ketone	2019/02/06	87	70 - 130	81	70 - 130	<5.0	ug/L	NC	30
5961124	Methyl t-butyl ether (MTBE)	2019/02/06	93	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5961124	Methylene Chloride(Dichloromethane)	2019/02/06	91	70 - 130	87	70 - 130	<2.0	ug/L	NC	30
5961124	o-Xylene	2019/02/06	99	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5961124	p+m-Xylene	2019/02/06	99	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5961124	Styrene	2019/02/06	102	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
5961124	Tetrachloroethylene	2019/02/06	97	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5961124	Toluene	2019/02/06	99	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5961124	Total Xylenes	2019/02/06					<0.20	ug/L	NC	30
5961124	trans-1,2-Dichloroethylene	2019/02/06	95	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5961124	trans-1,3-Dichloropropene	2019/02/06	88	70 - 130	100	70 - 130	<0.40	ug/L	NC	30
5961124	Trichloroethylene	2019/02/06	97	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5961124	Trichlorofluoromethane (FREON 11)	2019/02/06	91	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5961124	Vinyl Chloride	2019/02/06	80	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5966475	F2 (C10-C16 Hydrocarbons)	2019/02/11	116	50 - 130	114	60 - 130	<100	ug/L	NC	30
5966475	F3 (C16-C34 Hydrocarbons)	2019/02/11	NC	50 - 130	114	60 - 130	<200	ug/L	NC	30
5966475	F4 (C34-C50 Hydrocarbons)	2019/02/11	115	50 - 130	115	60 - 130	<200	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Job #: B930196
Report Date: 2019/02/11

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Appendix E

Soil Remediation

5150 Ninth Line

Mississauga, Ontario

Prepared For:

Mattamy (5150 Ninth Line) Limited

7880 Keele Street, Suite 500

Vaughan, Ontario

L4K 4G7

DS Project No: 18-748-100

Date: 2019-08-28

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APPENDICES

Appendix A – Laboratory Certificates of Analysis

1.0 Introduction

This report provides a summary of the remedial activity which has been completed in order to reduce the concentrations of contaminants on, in or under the Property located at 5150 Ninth Line in the city of Mississauga, Ontario (herein referred to as the "Site" or "Property"). The following sections detail the remedial actions, the presence/absence of free-flowing product, the results of the confirmatory sampling and laboratory analysis, the results of the quality assurance/quality control (QA/QC) samples and conclusions.

The objection of the remediation program was to remediate the soil impacts identified in the Phase Two Environmental Site Assessment completed by DS Consultants, dated February 28, 2019.

2.0 Remedial Actions

2.1 Soil Excavation and Soil Treatment Activities

The soil remediation activities at the Property consisted of the following:

- Excavation of soil impacted with petroleum hydrocarbons (PHCs), within the vicinity of borehole BH4, located within APEC-4.

The soil remediation activities are detailed in the following subsections.

2.1.1 Soil Excavation

The Phase Two ESA identified concentrations of (parameters) in excess of the applicable MECP Table 2 SCS as follows:

- PHC (F2)– BH4 SS2 (0.8-1.4 mbgs)

The soil impacts were identified in a previous Phase II ESA conducted by Sirati & Partners Consultants Limited, dated July 26, 2017. 2017. During the Phase Two ESA conducted in by DS in 2019, five boreholes were advanced in the vicinity of the impacted borehole to determine the horizontal and vertical extent of the PHC impacts in soil. The results of the delineation indicated that the PHC impacts in soil appear to be contained within a 3-metre radius of BH4 and extend to an approximate depth of 1.5 mbgs. The results of the groundwater sampling conducted indicated that the groundwater quality had not been adversely affected by the impacted soils.

The impacted soils were remediated on April 5, 2019 through the excavation and off-site disposal at a licensed MECP receiving facility. The excavation was conducted by Terrain Group under the supervision of DS personnel. Approximately seventy-two cubic metres of

soil was excavated and removed from the Property in order to reduce the contaminant concentrations present to levels below the MECP Table 2 SCS. A visual representation of the approximate extent of the remedial excavation is provide in Figure 6Bi.

Confirmatory soil sampling was conducted at the limits of the remedial excavation on April 5, 2019. Additional details regarding the confirmatory sampling program are provided in Section 3.0 below.

3.0 Confirmatory Sampling

3.1 Confirmatory Sampling Activities

Confirmatory samples were collected upon completion of the remedial excavation. Per the requirements of O.Reg 153/04 (as amended), soil samples were collected from the remedial excavation for the purposes of field screening at a minimum frequency of one sample per every 5 square metres (m^2) from the excavation sidewalls, and one sample per every 10m^2 from the excavation floor.

The screening samples collected were inspected and examined to assess soil type, ground water conditions, and possible chemical contamination by visual and olfactory observations or by organic vapour screening. Samples submitted for chemical analysis were collected from locations judged by the assessor to be most likely to exhibit the highest concentrations of contaminants based on several factors including (i) visual or olfactory observations, (ii) sample location, depth, and soil type (iii) ground water conditions and headspace reading. Organic vapour screening was conducted using a calibrated RKI Eagle 2 (Model 5101-P2).

A summary of the remedial excavation dimensions, depth, and number of soil samples collected for screening purposes as well as for laboratory analysis is presented in the table below:

Table 3-1: Summary of Remedial Excavation Sampling

Excavation	Horizontal Extent/Dimensions (metres)	Excavation Depth (metres)	Field Screening Samples	Sidewall Samples Submitted for Chemical Analysis	Floor Samples Submitted for Chemical Analysis
EX-1 (vicinity of MW19-4)	6x6	2.1	18	3	2

A remedial excavation was conducted on April 5, 2019 under the supervision of DS personnel. The excavation encompassed a 3-metre radius surrounding BH4 and extended to an approximate depth of 2.1mbgs. Based on the area of the excavation, a total of three sidewall and two floor samples were submitted for chemical analysis of PHCs. One QA/QC sample was also submitted for chemical analysis. The results of the chemical analyses indicated that all samples collected met the MECP Table 2 SCS.

3.2 Confirmatory Sampling Results

A summary of the laboratory analytical results pertaining to the confirmatory sampling program is provided in Tables 1 through 3. Soil vapour headspace readings were collected at the time of sample collection, using a PID and CGD in methane elimination mode. The PID readings were all non-detectable (0ppm) and the CGD readings ranged between 0 and 50 ppm.

The results of the chemical analyses indicated that all the confirmatory samples analysed met the MECP Table 2 SCS.

A visual representation of the confirmatory sample locations, and associated laboratory results are provided in Figure 6Bi. Cross Sections depicting the extent of the remedial excavation and confirmatory sample locations are provided in Figures 8C to 8F.

3.3 Quality Control and Quality Assurance

The field QA/QC program involved the collection of field duplicate soil samples. In addition to the controls listed above, the analytical laboratory employed method blanks, internal laboratory duplicates, surrogate spike samples, matrix spike samples, and standard reference materials.

A summary of the field duplicate samples analyzed and an interpretation of the efficacy of the QA/QC program is provided in the table below.

Table 3-2: Summary of QA/QC Results

Sample ID	QA/QC duplicate	Medium	Parameter Analyzed	QA/QC Result
Dup-1	FL1	Soil	PHCs	All results were within the analytical protocol criteria for RPD

4.0 Conclusions

The results of the post-remediation confirmatory sampling indicated that the remedial efforts were successful in reducing the concentrations of contaminants in soil to levels below the MECP Table 2 SCS. Based on these findings no further remedial work is required to meet the requirements of O.Reg. 153/04 (as amended).

4.1 Signatures

This Remediation Program was conducted under the supervision of Patrick Fioravanti, B.Sc., P.Geo., QP_{ESA} in accordance with the requirements of O.Reg. 153/04 (as amended). The findings and conclusions presented have been determined based on the information obtained at the time of the investigation, and on an assessment of the conditions of the Site at this time.

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

Yours truly,

DS Consultants Ltd

Tanner Leonhardt, B.Eng., EIT.
Environmental Technician

Patrick Fioravanti, B.Sc., P.Geo., QP_{ESA}
Manager – Environmental Services

4.2 Limitations

This report was prepared for the sole use of Mattamy (5150 Ninth Line) Limited and is intended to provide an assessment of the environmental condition on the property located at 5150 Ninth Line, Mississauga, Ontario. The information presented in this report is based on information collected during the completion of the Remediation Report by DS Consultants Ltd. The material in this report reflects DS' judgment in light of the information available at the time of report preparation. This report may not be relied upon by any other person or entity without the written authorization of DS Consultants Ltd. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this documents or findings, conclusions and recommendations represented herein, is at the sole risk of said users.

The conclusions drawn from the Remediation Report were based on information at selected observation and sampling locations. Conditions between and beyond these locations may become apparent during future investigations or on-site work, which could not be detected or anticipated at the time of this investigation. The sampling locations were chosen based upon a cursory historical search, visual observations and limited information provided by persons knowledgeable about past and current activities on this site during the Phase Two ESA activities. As such, DS Consultants Ltd. cannot be held responsible for environmental conditions at the site that was not apparent from the available information.

Figures

J:\-GIS\18-748 5150 Ninth line\1-QGIS\Phase Two\Figure 6Bi – Confirmatory Soil Characterization for EX-1 - PHCs.qgs

SWN1	
Date:	05-Apr-19
Depth (mbgs):	0.8-1.4
Parameter	Result
F2 (C10-C16)	<10

BH19-D4 SS2	
Date:	23-Jan-19
Depth (mbgs):	0.8-1.4
Parameter	Result
F2 (C10-C16)	<10

FL1	
Date:	05-Apr-19
Depth (mbgs):	1.8-2.1
Parameter	Result
F2 (C10-C16)	<10

BH4		
Sample:	SS2	SS6
Depth (mbgs):	0.8-1.4	4.5-5.2
Parameter	Result	Result
F2 (C10-C16)	150	<10

BH19-D2 SS2	
Date:	23-Jan-19
Depth (mbgs):	0.8-1.4
Parameter	Result
F2 (C10-C16)	<10

BH19-D3 SS2	
Date:	23-Jan-19
Depth (mbgs):	0.8-1.4
Parameter	Result
F2 (C10-C16)	<10

SWE1	
Date:	05-Apr-19
Depth (mbgs):	0.8-1.4
Parameter	Result
F2 (C10-C16)	<10

MW19-4 SS3	
Date:	23-Jan-19
Depth (mbgs):	1.5-2.1
Parameter	Result
F2 (C10-C16)	<10

FL2	
Sample:	05-Apr-19
Depth (mbgs):	1.8-2.1
Parameter	Result
F2 (C10-C16)	<10

BH19-D1 SS2	
Date:	23-Jan-19
Depth (mbgs):	0.8-1.4
Parameter	Result
F2 (C10-C16)	<10

SWS2	
Date:	05-Apr-19
Depth (mbgs):	0.8-1.4
Parameter	Result
F2 (C10-C16)	<10

SWN1 BH19-D4 6m FL1 MW4 BH19-D3 BH19-D2 6m SWE1 MW19-4 FL2 BH19-D1 SWS2

Parameter	O.Reg. 153/04 MECP Table 2 RPI
F2 (C10-C16)	98

0 1 2 m

Legend

- Borehole Met Table 2 Standards
- Monitoring Well (DS) Met Table 2 Standards
- Monitoring Well (Others) Exceeds Table 2 Standards
- Confirmatory Sample Met Table 2 Standards

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **CONFIRMATORY SOIL CHARACTERIZATION FOR EX-1 - PHCs**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-748-100	Figure No.: **6Bi**

Image/Map Source: *Google Satellite Image*

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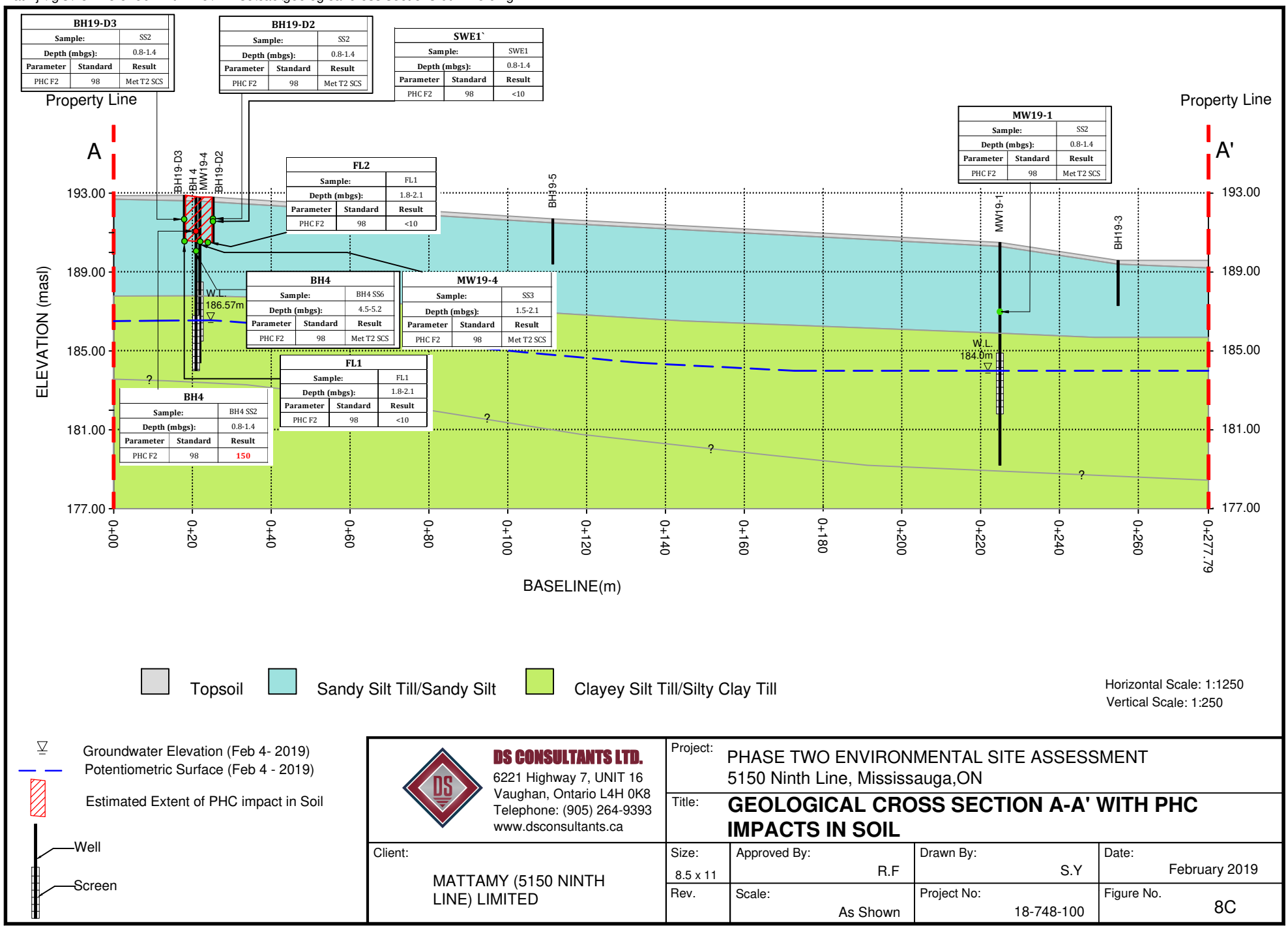

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GEOLOGICAL CROSS SECTION A-A' WITH PHC IMPACTS IN SOIL**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev.	Scale:	Project No:	Figure No.
	As Shown	18-748-100	8C

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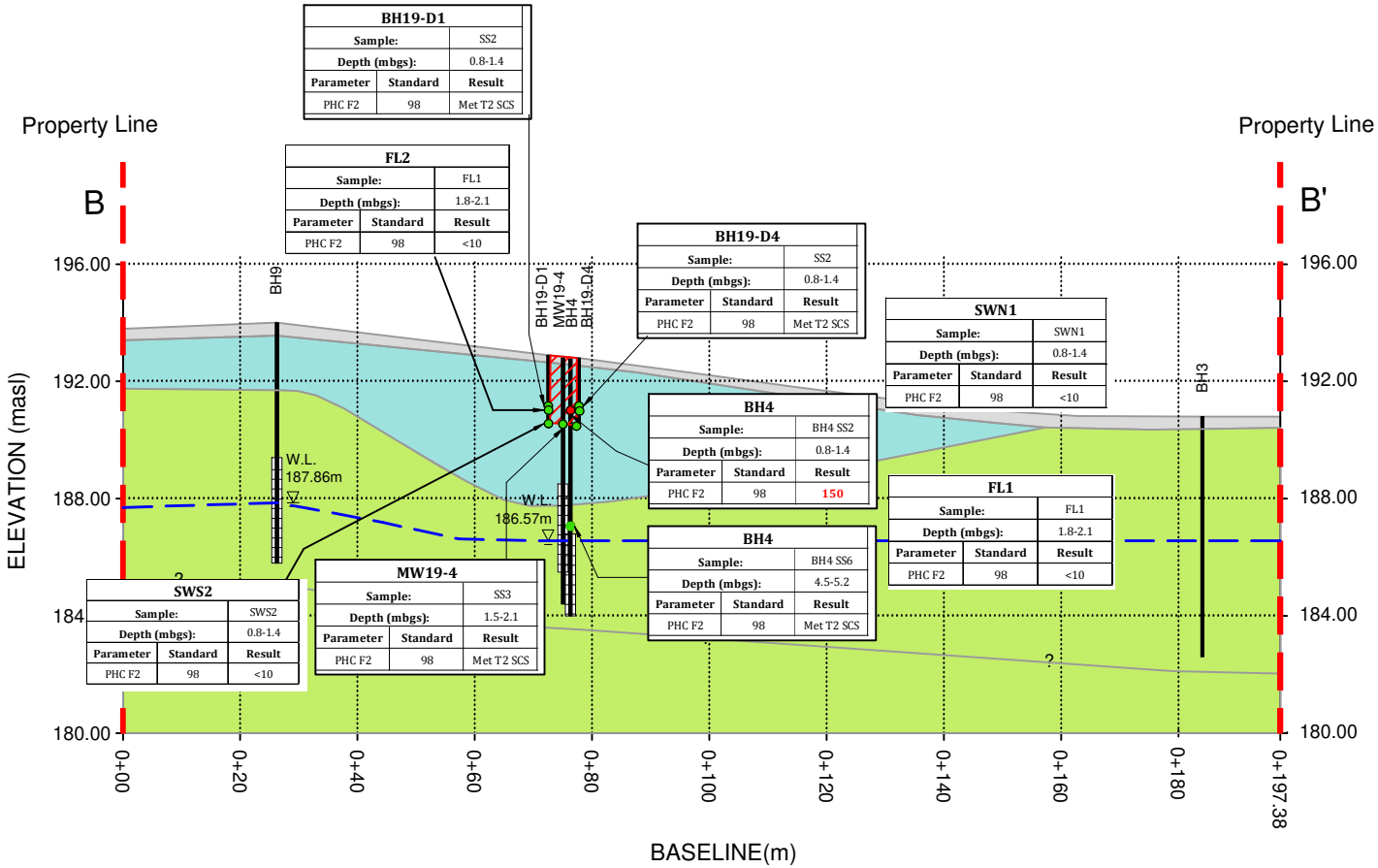

Horizontal Scale: 1:1250
Vertical Scale: 1:250

Groundwater Elevation (Feb 4- 2019)
Potentiometric Surface (Feb 4 - 2019)
Estimated Extent of PHC impact in Soil
Well
Screen

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GEOLOGICAL CROSS SECTION B-B' WITH PHC IMPACTS IN SOIL**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev.	Scale:	Project No:	Figure No.
	As Shown	18-748-100	8D

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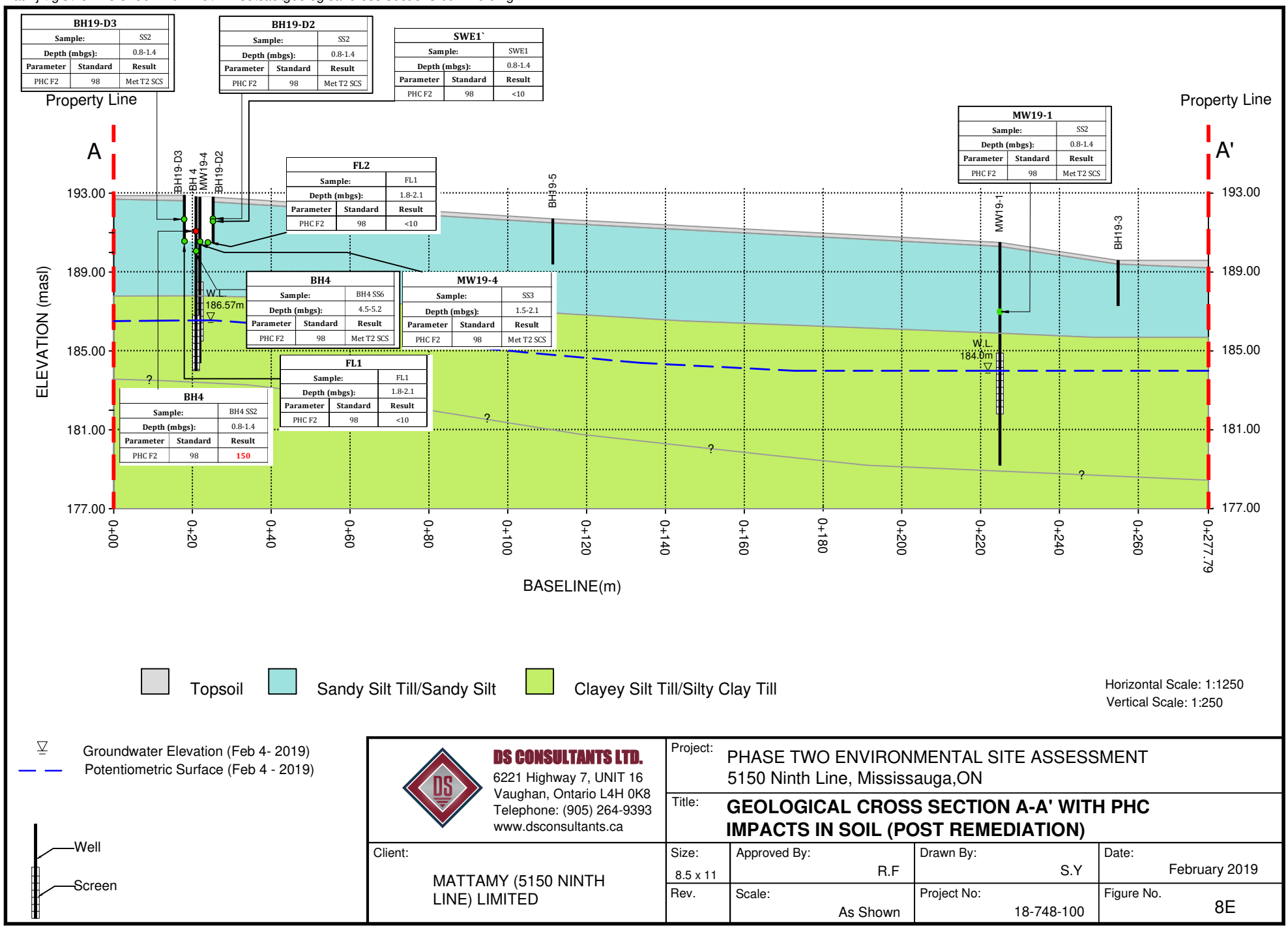

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GEOLOGICAL CROSS SECTION A-A' WITH PHC IMPACTS IN SOIL (POST REMEDIATION)**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev.	Scale: As Shown	Project No: 18-748-100	Figure No. 8E

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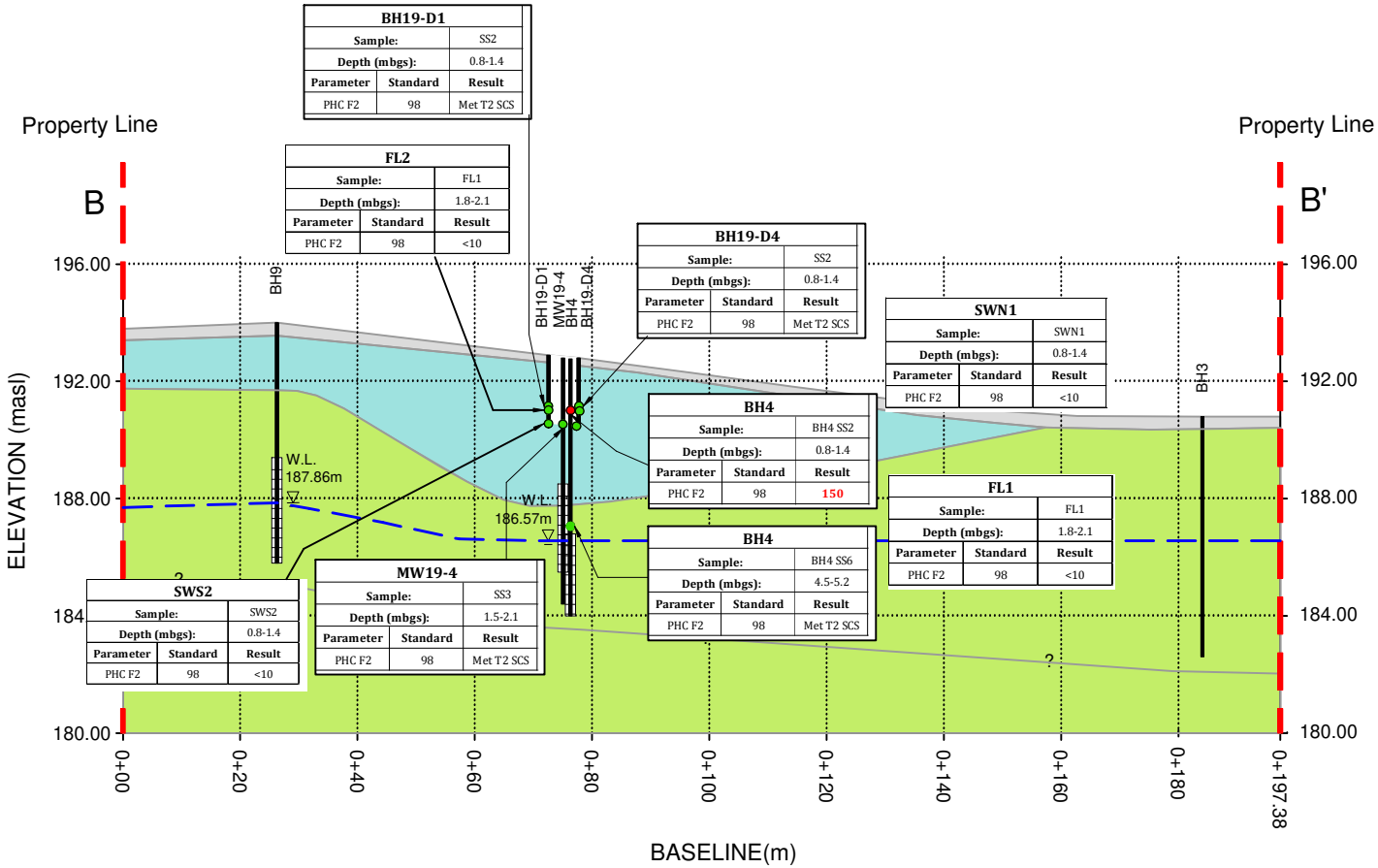

Horizontal Scale: 1:1250
Vertical Scale: 1:250

Groundwater Elevation (Feb 4- 2019)
Potentiometric Surface (Feb 4 - 2019)

Well
Screen

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5150 Ninth Line, Mississauga,ON

Title: **GEOLOGICAL CROSS SECTION B-B' WITH PHC IMPACTS IN SOIL (POST REMEDIATION)**

Client: MATTAMY (5150 NINTH LINE) LIMITED

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	February 2019
Rev.	Scale:	Project No:	Figure No.
	As Shown	18-748-100	8F

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Your Project #: 18-748-100
Your C.O.C. #: 703758-01-01

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/04/15
Report #: R5672044
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B990830
Received: 2019/04/08, 12:06

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	5	N/A	2019/04/10	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	6	2019/04/09	2019/04/10	CAM SOP-00316	CCME CWS m
Moisture	6	N/A	2019/04/09	CAM SOP-00445	Carter 2nd ed 51.2 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

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Your Project #: 18-748-100
Your C.O.C. #: 703758-01-01

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/04/15
Report #: R5672044
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B990830
Received: 2019/04/08, 12:06

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ashton Gibson, Project Manager
Email: AGibson@maxxam.ca
Phone# (905) 817-5700

==========

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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID				JJU684			JJU684		
Sampling Date				2019/04/05 10:00			2019/04/05 10:00		
COC Number				703758-01-01			703758-01-01		
	UNITS	Criteria	Criteria-2	SWN1	RDL	QC Batch	SWN1 Lab-Dup	RDL	QC Batch
Inorganics									
Moisture	%	-	-	14	1.0	6060670	13	1.0	6060670
BTEX & F1 Hydrocarbons									
Benzene	ug/g	0.32	0.21	<0.020	0.020	6062557			
Toluene	ug/g	6.4	2.3	<0.020	0.020	6062557			
Ethylbenzene	ug/g	1.1	1.1	<0.020	0.020	6062557			
o-Xylene	ug/g	-	-	<0.020	0.020	6062557			
p+m-Xylene	ug/g	-	-	<0.040	0.040	6062557			
Total Xylenes	ug/g	26	3.1	<0.040	0.040	6062557			
F1 (C6-C10)	ug/g	55	55	<10	10	6062557			
F1 (C6-C10) - BTEX	ug/g	55	55	<10	10	6062557			
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	230	98	<10	10	6060684			
F3 (C16-C34 Hydrocarbons)	ug/g	1700	300	<50	50	6060684			
F4 (C34-C50 Hydrocarbons)	ug/g	3300	2800	<50	50	6060684			
Reached Baseline at C50	ug/g	-	-	Yes		6060684			
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	-	101		6062557			
4-Bromofluorobenzene	%	-	-	101		6062557			
D10-Ethylbenzene	%	-	-	107		6062557			
D4-1,2-Dichloroethane	%	-	-	98		6062557			
o-Terphenyl	%	-	-	94		6060684			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Textured Soil
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID				JJU685	JJU686			JJU686		
Sampling Date				2019/04/05 10:05	2019/04/05 10:10			2019/04/05 10:10		
COC Number				703758-01-01	703758-01-01			703758-01-01		
	UNITS	Criteria	Criteria-2	SWE1	SWS2	RDL	QC Batch	SWS2 Lab-Dup	RDL	QC Batch
Inorganics										
Moisture	%	-	-	12	14	1.0	6060670			
BTEX & F1 Hydrocarbons										
Benzene	ug/g	0.32	0.21	<0.020	<0.020	0.020	6062557	<0.020	0.020	6062557
Toluene	ug/g	6.4	2.3	<0.020	<0.020	0.020	6062557	<0.020	0.020	6062557
Ethylbenzene	ug/g	1.1	1.1	<0.020	<0.020	0.020	6062557	<0.020	0.020	6062557
o-Xylene	ug/g	-	-	<0.020	<0.020	0.020	6062557	<0.020	0.020	6062557
p+m-Xylene	ug/g	-	-	<0.040	<0.040	0.040	6062557	<0.040	0.040	6062557
Total Xylenes	ug/g	26	3.1	<0.040	<0.040	0.040	6062557	<0.040	0.040	6062557
F1 (C6-C10)	ug/g	55	55	<10	<10	10	6062557	<10	10	6062557
F1 (C6-C10) - BTEX	ug/g	55	55	<10	<10	10	6062557	<10	10	6062557
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	230	98	<10	<10	10	6060684			
F3 (C16-C34 Hydrocarbons)	ug/g	1700	300	<50	<50	50	6060684			
F4 (C34-C50 Hydrocarbons)	ug/g	3300	2800	<50	<50	50	6060684			
Reached Baseline at C50	ug/g	-	-	Yes	Yes		6060684			
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	-	-	99	100		6062557	99		6062557
4-Bromofluorobenzene	%	-	-	99	100		6062557	98		6062557
D10-Ethylbenzene	%	-	-	101	106		6062557	112		6062557
D4-1,2-Dichloroethane	%	-	-	96	98		6062557	97		6062557
o-Terphenyl	%	-	-	96	94		6060684			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID				JJU687	JJU688		
Sampling Date				2019/04/05 10:30	2019/04/05 10:35		
COC Number				703758-01-01	703758-01-01		
	UNITS	Criteria	Criteria-2	FL1	FL2	RDL	QC Batch
Inorganics							
Moisture	%	-	-	12	12	1.0	6060670
BTEX & F1 Hydrocarbons							
Benzene	ug/g	0.32	0.21	<0.020	<0.020	0.020	6062557
Toluene	ug/g	6.4	2.3	<0.020	<0.020	0.020	6062557
Ethylbenzene	ug/g	1.1	1.1	<0.020	<0.020	0.020	6062557
o-Xylene	ug/g	-	-	<0.020	<0.020	0.020	6062557
p+m-Xylene	ug/g	-	-	<0.040	<0.040	0.040	6062557
Total Xylenes	ug/g	26	3.1	<0.040	<0.040	0.040	6062557
F1 (C6-C10)	ug/g	55	55	<10	<10	10	6062557
F1 (C6-C10) - BTEX	ug/g	55	55	<10	<10	10	6062557
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	230	98	<10	<10	10	6060684
F3 (C16-C34 Hydrocarbons)	ug/g	1700	300	<50	<50	50	6060684
F4 (C34-C50 Hydrocarbons)	ug/g	3300	2800	<50	<50	50	6060684
Reached Baseline at C50	ug/g	-	-	Yes	Yes		6060684
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	-	-	100	98		6062557
4-Bromofluorobenzene	%	-	-	100	99		6062557
D10-Ethylbenzene	%	-	-	105	104		6062557
D4-1,2-Dichloroethane	%	-	-	96	95		6062557
o-Terphenyl	%	-	-	98	96		6060684

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Textured Soil
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JJU689		
Sampling Date		2019/04/05		
COC Number		703758-01-01		
	UNITS	**DUP-1**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	12	1.0	6060670

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID				JJU689		
Sampling Date				2019/04/05		
COC Number				703758-01-01		
	UNITS	Criteria	Criteria-2	DUP-1	RDL	QC Batch
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	230	98	<10	10	6060684
F3 (C16-C34 Hydrocarbons)	ug/g	1700	300	<50	50	6060684
F4 (C34-C50 Hydrocarbons)	ug/g	3300	2800	<50	50	6060684
Reached Baseline at C50	ug/g	-	-	Yes		6060684
Surrogate Recovery (%)						
o-Terphenyl	%	-	-	93		6060684

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition
Soil - Industrial/Commercial/Community Property Use - Coarse Textured Soil
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

TEST SUMMARY

Maxxam ID: JJU684
Sample ID: SWN1
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6062557	N/A	2019/04/10	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6060684	2019/04/09	2019/04/10	Prabhjot Gulati
Moisture	BAL	6060670	N/A	2019/04/09	Mithunaa Sasitheepan

Maxxam ID: JJU684 Dup
Sample ID: SWN1
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6060670	N/A	2019/04/09	Mithunaa Sasitheepan

Maxxam ID: JJU685
Sample ID: SWE1
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6062557	N/A	2019/04/10	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6060684	2019/04/09	2019/04/10	Prabhjot Gulati
Moisture	BAL	6060670	N/A	2019/04/09	Mithunaa Sasitheepan

Maxxam ID: JJU686
Sample ID: SWS2
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6062557	N/A	2019/04/10	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6060684	2019/04/09	2019/04/10	Prabhjot Gulati
Moisture	BAL	6060670	N/A	2019/04/09	Mithunaa Sasitheepan

Maxxam ID: JJU686 Dup
Sample ID: SWS2
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6062557	N/A	2019/04/10	Abdi Mohamud

Maxxam ID: JJU687
Sample ID: FL1
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6062557	N/A	2019/04/10	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6060684	2019/04/09	2019/04/10	Prabhjot Gulati
Moisture	BAL	6060670	N/A	2019/04/09	Mithunaa Sasitheepan

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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

TEST SUMMARY

Maxxam ID: JJU688
Sample ID: FL2
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6062557	N/A	2019/04/10	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6060684	2019/04/09	2019/04/10	Prabhjot Gulati
Moisture	BAL	6060670	N/A	2019/04/09	Mithunaa Sasitheepan

Maxxam ID: JJU689
Sample ID: DUP-1
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6060684	2019/04/09	2019/04/10	Prabhjot Gulati
Moisture	BAL	6060670	N/A	2019/04/09	Mithunaa Sasitheepan

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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.0°C

Results relate only to the items tested.

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B990830
Report Date: 2019/04/15

QUALITY ASSURANCE REPORT

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6060684	o-Terphenyl	2019/04/09	97	60 - 130	97	60 - 130	94	%		
6062557	1,4-Difluorobenzene	2019/04/10	100	60 - 140	101	60 - 140	99	%		
6062557	4-Bromofluorobenzene	2019/04/10	99	60 - 140	99	60 - 140	100	%		
6062557	D10-Ethylbenzene	2019/04/10	106	60 - 140	94	60 - 140	93	%		
6062557	D4-1,2-Dichloroethane	2019/04/10	102	60 - 140	102	60 - 140	99	%		
6060670	Moisture	2019/04/09							2.2	20
6060684	F2 (C10-C16 Hydrocarbons)	2019/04/10	96	50 - 130	96	80 - 120	<10	ug/g	NC	30
6060684	F3 (C16-C34 Hydrocarbons)	2019/04/10	100	50 - 130	100	80 - 120	<50	ug/g	NC	30
6060684	F4 (C34-C50 Hydrocarbons)	2019/04/10	107	50 - 130	107	80 - 120	<50	ug/g	NC	30
6062557	Benzene	2019/04/10	95	60 - 140	93	60 - 140	<0.020	ug/g	NC	50
6062557	Ethylbenzene	2019/04/10	89	60 - 140	89	60 - 140	<0.020	ug/g	NC	50
6062557	F1 (C6-C10) - BTEX	2019/04/10					<10	ug/g	NC	30
6062557	F1 (C6-C10)	2019/04/10	95	60 - 140	99	80 - 120	<10	ug/g	NC	30
6062557	o-Xylene	2019/04/10	88	60 - 140	87	60 - 140	<0.020	ug/g	NC	50
6062557	p+m-Xylene	2019/04/10	93	60 - 140	92	60 - 140	<0.040	ug/g	NC	50
6062557	Toluene	2019/04/10	92	60 - 140	90	60 - 140	<0.020	ug/g	NC	50
6062557	Total Xylenes	2019/04/10					<0.040	ug/g	NC	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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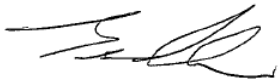
Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Brad Newman, Scientific Service Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B990830
Report Date: 2019/04/15

DS Consultants Limited
Client Project #: 18-748-100
Sampler Initials: TL

Exceedence Summary Table – Reg153/04 T2-Soil/Ind-C

Result Exceedences

Sample ID	Maxxam ID	Parameter	Criteria	Result	DL	Units
No Exceedences						

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedence Summary Table – Reg153/04 T2-Soil/Res-C

Result Exceedences

Sample ID	Maxxam ID	Parameter	Criteria	Result	DL	Units
No Exceedences						

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#32616 DS Consultants Limited	Company Name:		Quotation #:	B83863	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Tanner Leonhardt	P.O. #:			703758
Address:	6221 Highway 7, Unit 16 Vaughan ON L4H 0K8	Address:		Project:	~~18-747-100~~ 18-748-100	COC #:	Project Manager:
Tel:	(905) 264-9393 Fax:	Tel:	(519) 770-7238 Fax:	Project Name:		C#703758-01-01	Ashton Gibson
Email:	Jennifer.Monfriese@dsconsultants.ca	Email:	tanner.leonhardt@dsconsultants.ca	Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☒ Table 2 ☐ Ind/Comm ☐ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw	
☐ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA Municipality	
☒ Table ~~MQ~~	☐ PWQO	
	☐ Other	
Include Criteria on Certificate of Analysis (Y/N)?		

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: _____ Time Required: _____ ☐
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ANALYSIS REQUESTED (PLEASE BE SPECIFIC): Metals & Inorganics Pkg	VOCs by HS & F1-F4	Chromium (VI) in Water	PHCs (F1-F4)+BTEX	PHCs (F2-F4)					# of Bottles	Comments
1		SWN1	05/04/19	10:00	Soil					X							
2		SWE1		10:05						X							
3		SWS2		10:10						X							
4		FL1		10:30						X							
5		FL2		10:35						X							
6		Dup-1		/							X						
7																	
8																	
9																	
10																	

08-Apr-19 12:06
Ashton Gibson
B990830
GID ENV-590

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
Tanner Leonhardt	19/04/08	10:11	JUNE-COLENE CURITO	2019/04/08	12:06		Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
								7/10/7 1C	Present		
									Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa * Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Appendix F

Phase Two Conceptual Site Model

This Phase Two Conceptual Site Model was developed through a synthesis of the information obtained through the completion of the Phase One ESA, and the data collected as part of the Phase Two ESA. The Phase Two CSM is comprised of the following figures and text:

Figure 1 – Site Location Plan
Figure 2 – Phase Two Property Site Plan
Figure 3A – Phase Two Study Area
Figure 3B – PCA within Phase Two Study Area
Figure 4 – Borehole Location Plan with APECs
Figure 5 – Groundwater Elevation Contours and Flow Direction
Figure 6A – Soil Characterization – Metals & ORPs
Figure 6B – Soil Characterization – PHCs & VOCs
Figure 6Bi – Confirmatory Soil Characterization for EX-1 - PHCs
Figure 6C – Soil Characterization – PAHs
Figure 6D – Soil Characterization – OC Pesticides
Figure 7A – Groundwater Characterization – Metals & ORPs
Figure 7B – Groundwater Characterization – PHCs & VOCs
Figure 8A - Geological Cross-Section A-A'
Figure 8B - Geological Cross-Section B-B'
Figure 8C – Geological Cross-Section A-A' with PHC Impacts in Soil
Figure 8D - Geological Cross-Section B-B' with PHC Impacts in Soil
Figure 8E – Geological Cross-Section A-A' with PHC Impacts in Soil (Post Remediation)
Figure 8F - Geological Cross-Section B-B' with PHC Impacts in Soil (Post Remediation)
Figure 9A – Contaminant Exposure Pathways
Figure 9B – Contaminant Exposure Pathways (Post Remediation)

The Property is a 4.88-hectare (12.05 acres) parcel of land with a municipal address of 5150 and 5170 Ninth Line, situation within a residential neighbourhood in the City of Mississauga, Ontario. The Property was formerly used for agricultural purposes from the early 1800s until 1974. The Property was developed in 1974 for residential purposes, and included a two (2)-storey residential building with one level of basement (Site Building A), and a one and a half (1 ½)-storey shed (Site Building B), located on the north side of Site Building A. A small storage shed is located on the west side of Site Building A. The Property also contains a one-

storey barn with a storage shed (Site Building C). A cellular communication tower is located on the northwestern portion of the Property.

A Phase II ESA was previously conducted on 5170 Ninth Line in July by others involving the advancement of three (3) boreholes on the Property. Select soil samples were submitted for analysis of metals and inorganics, PHCs, VOCs, and OC Pesticides. Groundwater samples were submitted for analysis of PHCs and VOCs. The results of the chemical analysis indicated that the sample collected from BH4, located on the northwest portion of the Property, exceeded the MECP Table 2 Standards for PHCs (F2). The soil samples submitted met the MECP Table 2 Standards for all other parameters analyzed. The groundwater samples submitted met the MECP Table 2 Standards for all parameters analyzed.

DS was retained in November 2018 to conduct a Phase One ESA and Phase Two ESA (including remediation) for the Property. The results of the Phase One ESA identified five (5) PCAs for the property, related to a historic orchard on the Property, the identification of fill material in the SPCL geotechnical study, historic agricultural use, one (1) AST identified on the Property and the previous soil impacts identified.

The Phase Two ESA involved the advancement of ten (10) boreholes, which was completed between January 23, 2019 and January 24, 2019. Five (5) of the boreholes were advanced in the vicinity of borehole BH4 (completed in 2017), for the purpose of determining the vertical and horizontal extent of the PHC impacts previously identified in soil at the location of BH4. The remaining boreholes were completed in order to investigate the APECs identified in the Phase One ESA. Groundwater monitoring wells were installed in two (2) of the boreholes to facilitate the collection of groundwater samples and the assessment of groundwater flow direction.

The results of the chemical analyses indicated that all of the soil samples analysed met the MECP Table 2 Standards. The samples submitted for analysis of PHCs (F2) for horizontal and vertical delineation purposes in the vicinity of BH4 met the MECP Table 2 Standards. Groundwater samples were collected from monitoring wells MW19-1 and MW19-4 and submitted for analysis of Metals, PHCs and VOCs. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

The impacted soils were remediated on April 5, 2019 through the excavation and off-site disposal at a licensed MECP receiving facility. The excavation was conducted by Terrain Group under the supervision of DS personnel. Approximately seventy-two cubic metres of soil was excavated and removed from the Property in order to reduce the contaminant concentrations present to levels below the MECP Table 2 SCS. The final area of the remedial excavation associated with the PHC impacts identified in 2017 was approximately 36 m^2. The final depth of this excavation was approximately 2.1 metres. Confirmatory soil sampling was conducted upon completion of the remedial excavation activities. A total of two (2) floor and three (3) sidewall soil samples were submitted for chemical analysis of PHCs F1-F4 and BTEX. The results of the chemical analyses indicated that all of the samples met the Table 2 SCS. Based on these findings is was concluded that all of the impacted soils previously identified have been successfully remediated. The remaining soils and groundwater on the Property are considered to meet the applicable site condition standards.

I. Description and Assessment of:

A. Areas where potentially contaminating activity has occurred

A total of five (5) PCAs were identified in the Phase One ESA. A summary of the PCAs considered to be contributing to APECs on the Phase Two Property is provided in the table below.

PCA Item.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description	Contributing to APEC (Y/N)
1	PCA-28: Gasoline and associated products storage in fixed tanks	An aboveground fuel storage tank was located inside the storage shed on the west side of Site Building A.	Yes – APEC 1
2	PCA-30: Importation of Fill Material of Unknown Quantity.	Fill material was identified on the Phase One Property is previous geotechnical investigations. Topsoil was reported to have been imported for agricultural purposes.	Yes – APEC 2
3	PCA-40: Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications.	Historical use of the Phase One Property for agricultural use.	Yes – APEC 3
4	PCA – N/S: Operation of Cell Tower	Shallow PHC impacts in soil were identified in the 2017 Phase II ESA conducted by SPCL in the vicinity of the cell tower.	Yes – APEC 4

PCA Item.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description	Contributing to APEC (Y/N)
5	PCA – N/S: Orchard	Inferred use of pesticides on historical orchard.	Yes – APEC 5

N/S - not specified in Table 2, Schedule D, of O.Reg. 153/04

B. Areas of potential environmental concern

A total of five (5) APECs were identified to be present on the Phase Two Property through the completion of the Phase One ESA. A summary of the APECs identified, and the associated PCOCs is provided in the table below.

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	Vicinity of AST.	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks - aboveground fuel storage tank located inside the storage shed on the west side of Site Building A.	On Site	PHCs, VOCs, Metals	Soil, Groundwater
APEC-2	Entire Phase One Property.	PCA-30: Importation of Fill Material of Unknown Quantity.	On Site	PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-3	Entire Phase One Property.	PCA-40: Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications.	On Site	OC Pesticides, metals	Soil
APEC-4	Vicinity of former	PCA N/S: Shallow PHC impacts in soil	On Site	PHCs	Soil

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
	borehole MW4	identified in the 2017 Phase II ESA conducted by SPCL.			
APEC-5	Entire Phase One Property.	PCA N/S: Inferred use of pesticides on historical orchard.	On Site	OC Pesticides, metals	Soil

A summary of the soil samples submitted for chemical analysis in relation to the APECs identified on the Property is provided in the following table:

APEC	Description	PCOCs	Media	Boreholes Within APEC	Samples Analysed	Parameter Analyzed
APEC-1	AST in Storage Shed	PHCs, VOCs, Metals	Soil	MW19-1	SS2	Metals and Inorganics, PHCs, VOCs, BTEX
			Groundwater		MW19-1	Metals, PHCs, VOCs
APEC-2	Fill Material	PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil	MW19-1	SS2	Metals and Inorganics, PHCs, VOCs, BTEX
				BH19-3	SS1	Metals and Inorganics
				BH19-6	SS1	PAHS
					SS2	Metals and Inorganics
				BH3	SS2	Metals and Inorganics, OC Pesticides
				BH4	1	Metals and Inorganics
				GS5		Metals and Inorganics, OC Pesticides
				GS6		Metals and Inorganics, OC Pesticides
				GS7		Metals and Inorganics, PHCs, OC Pesticides
				GS8		Metals and Inorganics, OC Pesticides
				Dup1		OC Pesticides

APEC	Description	PCOCs	Media	Boreholes Within APEC	Samples Analysed	Parameter Analyzed
				Dup2		Metals and Inorganics
APEC-3	Potential Pesticide Application	OC Pesticides, Metals	Soil	BH19-2	SS1	OC Pesticides
					SS2	Metals and Inorganics
				BH19-3	SS1	Metals and Inorganics
				BH19-5	SS1	Metals and Inorganics, OC Pesticides
				BH19-6	SS2	Metals and Inorganics
				BH3	SS2	Metals and Inorganics, OC Pesticides
				BH4	1	Metals and Inorganics
				GS5		Metals and Inorganics, OC Pesticides
				GS6		Metals and Inorganics, OC Pesticides
				GS7		Metals and Inorganics, PHCs, OC Pesticides
				GS8		Metals and Inorganics, OC Pesticides
				Dup1		OC Pesticides
				Dup2		Metals and Inorganics
APEC-4	Shallow PHC Impacts identified in SPCL Phase II ESA	PHCs and BTEX	Soil	MW19-4	SS3	PHCs and BTEX
					SS5	PHCs and BTEX
				BH19-D1	SS2	PHCs and BTEX
				BH19-D2	SS2	PHCs and BTEX
				BH19-D3	SS2	PHCs and BTEX
				BH19-D4	SS2	PHCs and BTEX
				BH4	1	Metals and Inorganics
					2	PHCs and VOCs
					6	PHCs and, VOCs
APEC-5	Historical Orchard	OC Pesticides, Metals	Soil	BH19-2	SS1	OC Pesticides
					SS2	Metals and Inorganics
				BH19-3	SS1	Metals and Inorganics

APEC	Description	PCOCs	Media	Boreholes Within APEC	Samples Analysed	Parameter Analyzed
				BH19-5	SS1	Metals and Inorganics, OC Pesticides
				BH19-6	SS2	Metals and Inorganics
				BH3	SS2	Metals and Inorganics, OC Pesticides
				BH4	1	Metals and Inorganics
				GS5		Metals and Inorganics, OC Pesticides
				GS6		Metals and Inorganics, OC Pesticides
				GS7		Metals and Inorganics, PHCs, OC Pesticides
				GS8		Metals and Inorganics, OC Pesticides
				Dup1		OC Pesticides
				Dup2		Metals and Inorganics

C. Any subsurface structures and utilities on, in or under the Phase Two Property that may affect contaminant distribution and transport

The groundwater table was encountered at depths ranging from 6.14 to 6.47 mbgs on the Phase Two Property. Buried utility services are present on the Phase Two Property and are inferred to be situated approximately 2 to 3 mbgs. The utility trenches are not considered to be a potential preferential pathway for contaminant migration in groundwater, as the utility beds are situated above the water table.

II. Description of, and as appropriate, figures illustrating, the physical setting of the Phase Two Property and any areas under it including:

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

Boreholes drilled on the Site encountered 150 to 200mm of topsoil. Fill material was not identified in any of the boreholes advanced under the supervision of DS on the Property.

Below the topsoil, upper reworked native soils consisting of clayey silt, underlain by sandy silt/silty sand and sandy silt till deposits were encountered, extending to depths varying from 2.3 to 5.0 m. Below the sandy silt till layer, a cohesive, water bearing clayey silt till layer was encountered extending to depths varying from 8.4 to 11.2m. Shale bedrock was not encountered in any boreholes on the Phase Two Property.

The borehole locations are depicted on Figure 4. A visual representation of the stratigraphy investigated is presented on the cross-sections provided in Figures 8A through 8B.

B. Hydrogeological Characteristics, including aquifers, aquitards and, in each hydrostratigraphic unit where one or more contaminants is present at concentrations above the applicable site condition standards, lateral and vertical gradients

The groundwater table was encountered in a clayey silt till unit, which is considered to be an unconfined aquifer.

Based on the groundwater elevations, the groundwater flow direction is interpreted to be northeast towards Sawmill Creek. The average horizontal hydraulic gradient was calculated to be 0.021. The vertical hydraulic gradient was not calculated as no groundwater impacts were identified during the investigation.

C. Depth to bedrock

Bedrock was not encountered in any of the boreholes advanced on the Phase Two Property to a maximum depth of 11 m. Based on a review of MECP water well records on adjacent properties, the depth to bedrock on the Phase Two Property is inferred to be greater than 22 mbgs.

D. Approximate depth to water table

The depth to groundwater was found to range between 6.14 to 6.47 mbgs on February 4, 2019.

E. Any respect in which section 41 or 43.1 of the regulation applies to the property

The pH values measured were within the acceptable limits for non-sensitive sites. There are no areas of natural significance on the Phase Two Property, or within 30 m of the Phase Two

Property. As such the Phase Two Property is not considered to be environmentally sensitive as defined by Section 41.

F. Areas where soil has been brought from another property and placed on, in or under the Phase Two Property

No fill material was imported to the Phase Two Property at the time of the investigation.

G. Approximate locations, if known, of any proposed buildings and other structures

It is our understanding that redevelopment of the Site for residential purposes has been proposed. It is further understood that the proposed development will occupy the entirety of the Phase Two Property.

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 at a concentration greater than the applicable SCS

No chemical exceedances were identified in any boreholes within the Site for the Phase Two Investigation conducted by DS.

PHC F2 impacts were previously identified in borehole BH4, advanced as part of a 2017 investigation. The PHC impact was identified at a depth range of 0.8 to 1.4 mbgs.

The vertical and horizontal delineation of this impact was accomplished in 2019 through the advancement of borehole MW19-4 (adjacent to BH4), and four additional boreholes (BH19-D1 through D4). The vertical extent of the PHC impact was determined to be approximately 1.5 mbgs.

The location of the boreholes, PHC impact, and the interpreted horizontal extent of the PHC impact in soil is presented on Figure 6B. A visual representation of the confirmatory sample locations, and associated laboratory results are provided in Figure 6Bi. Cross Sections depicting the extent of the remedial excavation and confirmatory sample locations are provided in Figures 8C to 8F.

B. The contaminants associated with each of the areas

PHC F2 impacts were formerly identified in June of 2017 in borehole BH4. No other soil or groundwater impacts have been identified on the Phase Two Property.

C. Medium that contaminants were identified in

Contaminants were identified at concentrations greater than the applicable SCS in soil. All of the groundwater samples analyzed met the Table 2 SCS.

D. Description and assessment of what is know about each of the areas

The records reviewed as part of the Phase One ESA indicated that minor spill of gasoline occurred in the vicinity of the cellular communication tower located in the northwestern corner of the Property. Borehole BH4 was advanced in 2017 in order to investigate the soil and groundwater quality in relation to this potentially contaminating activity. PHC F2 soil impacts were identified at an approximate depth 0.8-1.4 mbgs in borehole BH4. The groundwater obtained from BH/MW4 was found to meet the Table 2 SCS.

The Phase Two ESA conducted by DS in January 2019 included horizontal and vertical delineation of the PHC impacts in soil. Borehole MW19-4 was advanced adjacent to BH4 for the purpose of vertical delineation. The soil sample collected at a depth of 1.5-2.1 mbgs met the Table 2 SCS for PHCs, as such it appears that the vertical extent of the PHC impacts in soil is approximately 1.5 mbgs. Four additional boreholes were advanced within a 3 metre radius of BH4 for the purposes of horizontal delineation. Samples were collected from these boreholes (BH19-D1 through D4) at a depth of 0.8 to 1.4 mbgs and submitted for analysis of PHCs. All of these samples met the Table 2 SCS. Based on the results of the horizontal delineation activities, it appears that the horizontal extent of the PHC impacts is contained within a 3 metre radius of BH4.

The groundwater sampled from BH4/MW19-4 met the Table 2 SCS for PHCs, indicating that the soil impact has not adversely affected the groundwater quality.

E. Distribution in which the areas of each contaminant is present in the area at a concentration greater than the applicable SCS, for each medium in which the contaminant is present, together with figures showing the distribution

The results of the Phase Two ESA indicated that the soil impacts (PHCs) appear to be contained within a 3 metre radius of BH4. The horizontal distribution of the PHC impacts identified is presented on Figure 7.

F. Anything know about the reason for the discharge of the contaminants present on, in or under the Phase Two Property at a concentrations greater than the applicable SCS

The PHC impacts are inferred to have been a result of a reported gasoline spill which occurred in the vicinity of the cell tower in the northwestern portion of the Phase Two Property.

G. Anything known about migration of the contaminants present on, in or under the phase two property at a concentration greater than the applicable SCS away from any area of potential environmental concern, including the identification of any preferential pathways

Based on the results of the Phase Two ESA, the PHC impacts in soil appear to be localized within a 3 metre radius of BH4, and do not appear to extend to depths greater than 1.5 mbgs.

The PHC impacted soils were remediated in April 2019 through excavation and off-site disposal. The results of the confirmatory soil sampling program demonstrated that the impacted soils previously identified in borehole BH4 has been successfully remediated.

Based on the analytical results there is no indication of contaminant migration at this time. No preferential pathways were identified in the vicinity of BH4.

H. Climatic or meteorological conditions that may have influenced distribution and migration of the contaminants, such as temporal fluctuations in groundwater levels

Shallow soil impacts identified at a maximum depth of 1.4 mbgs were previously identified on the Phase Two Property. The depth to groundwater ranged between 6.14 to 6.47 mbgs at

the time of the investigation. Due to the considerable vertical separation between the impacted soil and the groundwater table, and the relatively low permeability of the soils on the Property, it is the opinion of the QP_{ESA} that temporal fluctuations in groundwater levels are unlikely to have influenced contaminant distribution in association with the PHC impacts identified in borehole BH4.

I. <u>Information concerning soil vapour intrusion of the contaminants into buildings</u>

All of the impacted soil has been remediated, as such there is no apparent source of concern remaining with respect to soil vapour intrusion.

IV. Where contaminants on, in or under the Phase Two Property are present at concentrations greater than the applicable SCS, one or more cross-sections showing

- **A. <u>The lateral and vertical distribution of a contaminant in each area where the contaminants are present at concentrations greater than the applicable SCS in soil, groundwater and sediment</u>**
- **B. <u>Approximate depth to water table</u>**
- **C. <u>Stratigraphy from ground surface to the deepest aquifer or aquitard investigated</u>**
- **D. <u>Any subsurface structures and utilities that may affect contaminants distribution and transport</u>**

Cross-sections depicting this content have been prepared, refer to Figures 8A through 8F.

V. For each area where a contaminant is present on, in or under the property at a concentration greater than the applicable SCS for the contaminant, a diagram identifying, with narrative explanatory notes

- **A. The release mechanisms**
- **B. Contaminant transport pathway**
- **C. The human and ecological receptors located on, in or under the phase two property**
- **D. Receptor exposure points**
- **E. Routes of exposure**

Figure 9A provides a diagram documenting these considerations pre-remediation. Figure 9B illustrates the current site conditions.