



19A-03726

2019 Phase 2 Environmental Site Assessment

Plan 112 4353, Block 46, Lot 56

Prepared for:

1465770 Alberta Ltd.

Prepared by:

Vertex Professional Services Ltd.

Date:

November 2019

**2019 Phase 2 Environmental Site Assessment
Plan 112 4353, Block 46, Lot 56**

Prepared for:

1465770 Alberta Ltd.

2702 – 50th Avenue

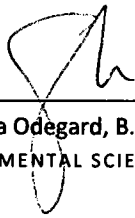
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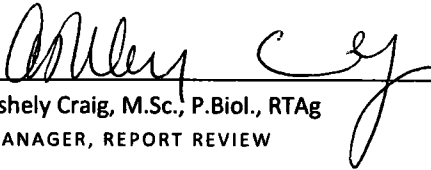
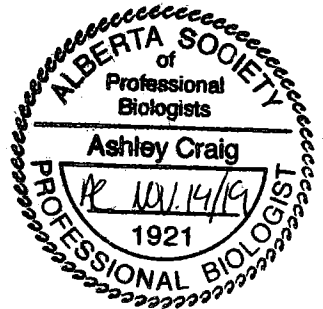
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Executive Summary

1465770 Alberta Ltd. retained Vertex Professional Services Ltd. (Vertex) to conduct a Phase 2 Environmental Site Assessment at a commercial property located at Plan 112 4353, Block 46, Lot 56 (2702 – 50th Avenue, Lloydminster, Alberta).

Vertex personnel conducted the field assessment on October 16 and November 7, 2019. A total of three boreholes were advanced and completed as groundwater monitoring wells to assess the Underground Storage Tank Area.

All analyzed soil and groundwater parameters were below/within applied guidelines.

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1.0 Introduction

1465770 Alberta Ltd. retained Vertex Professional Services Ltd. (Vertex) to conduct a Phase 2 Environmental Site Assessment (Phase 2 ESA) at a commercial property located at Plan 112 4353, Block 46, Lot 56 (2702 – 50th Avenue, Lloydminster, Alberta, hereafter referred to as “site”; Figure 1). Vertex personnel conducted the field assessment on October 16 and November 7, 2019. This document provides a description of the site, methods used, results and interpretation of the Phase 2 ESA.

1.1 Scope of Work

The following scope of work was established for the Phase 2 ESA:

- Review available background information and previous environmental work
- Communicate with 1465770 Alberta Ltd. personnel to ensure access to the site and any changes to the scope of work
- Follow Vertex ground disturbance protocols
- Complete the field portion of the Phase 2 ESA
- Submit soil and groundwater samples to an accredited laboratory for analysis
- Prepare a report

2.0 Background

2.1 Site Description

The site is located within a commercial area of Lloydminster, Alberta. The site is surrounded by commercial businesses to the north, south, east and west. 50th Avenue runs north-south east of the site. Site drainage is predominantly toward the centre of the site toward catch basins connected to the Lloydminster stormwater system.

The convenience store is located in the west portion of the site, and a gas pump shelter with four pumps and an underground storage tank (UST) are located in the central portion of the site. Photographs obtained during the assessment are included in Appendix A.

2.2 Ecological Setting

The *Natural Regions and Subregions of Alberta* map indicates the site is located in the Central Parkland Natural Subregion of the Parkland Natural Region. The Central Parkland Natural Subregion is extensively cultivated. Reference vegetation in uncultivated areas is characterized by aspen clones interspersed with plains rough fescue grasslands. Wetland vegetation is dominantly comprised of graminoid species. July is generally the warmest month with a mean temperature of 16.5 °C and January is generally the coldest month with a mean temperature of -14.7 °C. Maximum precipitation usually occurs in July with a total mean annual precipitation of 441 mm. Major soils in the area are Black Chernozems with some Dark Gray Chernozems. Gleysols are common in wetlands. Land use in the subregion is predominantly oil and gas, till cropping and grazing (Natural Regions Committee, 2006).

2.3 Regional Hydrogeology

The site is located within the County of Vermilion River. A report compiled by Hydrogeological Consultants Ltd. indicated that, by 1999, there were 2,833 registered water wells completed in the surficial aquifers, with 40%

having a completion depth of less than 20 m. There are eight named aquifers beneath the County of Vermilion River. Most surficial wells have yields of less than 100 m³/day, with the exception of those near the Buried Vermilion Valley where the yield can exceed 100 m³/day. Surficial deposits are generally less than 30 m thick, except in bedrock low areas (in the vicinity of the Buried Vermilion Valley) where the thickness of surficial deposits can exceed 100 m. The majority of the groundwater is calcium-magnesium-bicarbonate or sodium-bicarbonate type. The groundwater generally has a chemical hardness greater than 400 mg/L, a dissolved iron concentration of less than 1 mg/L and a total dissolved solids (TDS) concentration ranging from 1,000 mg/L to greater than 1,500 mg/L. Elevated TDS concentrations correlate with elevated sulphate concentrations. Chloride concentrations are expected to be less than 100 mg/L. Averages for the five groundwater quality constituents of TDS, sodium, sulphate, chloride and nitrate plus nitrite nitrogen are 1,116, 176, 352, 41 and 0.3 mg/L, respectively (Hydrogeological Consultants Ltd., 1999).

2.4 Local Water Well Search

A water well search in November 2019 identified 46 water wells within a 1.6 km radius of the site. Well completion depths range from 6 to 72 m (18 to 237 ft; Abacus Datagraphics Ltd., 2019). The reported uses are as follows:

- Domestic – 28
- Domestic & Stock – 4
- Domestic & Irrigation – 1
- Irrigation – 13

The closest water well is located 148.46 m away from the site (Well ID 221383) and is listed as domestic. The well completion depth is 64 m (210 ft). The water well search results are included in Appendix B.

2.5 Local Water Bodies

One stormwater retention pond is located within 500 m the site (Abacus Datagraphics Ltd., 2019).

2.6 Previous Environmental Work

Ridgeline Canada Inc. completed a Phase 2 ESA in March 2014. The objective of the Phase 2 ESA was to identify and characterize potential soil impacts associated with past operations at the site, and assess and document compliance with Alberta Environmental and Sustainable Resources Development (ESRD) guidelines for commercial land use fine-grained soil. The area of potential concern (APEC) addressed during this assessment included the UST area. Five boreholes were advanced on-site to a maximum depth of 4.5 meters below ground surface (mbgs). Analytical results indicated that soil samples submitted were less than reference guidelines (Ridgeline Canada Inc., 2014).

2.7 Potential Contaminants of Concern

The identified potential contaminants of concern associated with the site, based on site operations, include:

- Benzene, toluene, ethylbenzene and xylenes (BTEX), and petroleum hydrocarbon fractions F1 to F4

3.0 Methods

The Phase 2 ESA included advancing three boreholes to a depth of 4.5 mbgs by means of a 15 cm (6 in) solid stem truck mounted auger unit supplied by Top Gear Contracting Ltd. All boreholes were completed as groundwater monitoring wells.

3.1 Ground Disturbance Protocol

Vertex personnel contacted the Alberta One-Call Corporation on October 9, 2019, and ticket number 20194109122 was issued. Walleye Locating Ltd. completed line locating on October 16, 2019. Supporting documentation is included in Appendix C.

3.2 Soil

3.2.1 Soil Sampling

Three boreholes (MW19-01 to MW19-03) were advanced to assess the UST Area.

The soil sampling protocol was designed and implemented to identify and determine changes in the soil condition within the vertical and lateral profiles. Each borehole was logged by recording the soil texture and general characteristics for the entire soil profile (e.g. colour, inclusions and consistency). Lithological descriptions are presented in the borehole logs in Appendix D.

Field screening was performed using an RKI Eagle™ gas monitor for the detection of volatile hydrocarbons. Visual observations and field screening results were used to determine which soil samples would be submitted to the laboratory for analyses. The practices related to sampling, preparation, and maintenance of sample integrity and storage followed the standards outlined in the *Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment, Volume 4: Analytical Methods* (Canadian Council of Ministers of the Environment, 2016).

3.2.2 Laboratory Analysis

Samples were submitted to Element Materials Technology Inc. for laboratory analyses. Select samples were submitted for laboratory analysis of particle size by sieve and petroleum hydrocarbon parameters. The laboratory data report is included in Appendix E.

3.3 Groundwater

3.3.1 Groundwater Monitoring Well Installation

Three boreholes (MW19-01 to MW19-03) were completed as groundwater monitoring wells MW19-01, MW19-02 and MW19-03, respectively, in order to characterize groundwater conditions and assess the characteristics of the shallow aquifers. Each groundwater monitoring well was installed using a 50 mm polyvinyl chloride (PVC) standpipe. The standpipe consisted of a 50 mm diameter machine slotted (0.010 in slot) PVC well screen, measuring from 1.0 to 3.0 m in length. The annulus around and approximately 0.3 m above the screened portion was backfilled with 10/20 sand. The remainder of the borehole was backfilled with hydrated bentonite. A steel casing (equipped with a lockable top) was installed to protect the aboveground portion of the PVC standpipe. Completion details of the groundwater monitoring wells are illustrated on the borehole logs included in Appendix D.

3.3.2 Groundwater Monitoring Well Development

Prior to the collection of groundwater data, newly installed groundwater monitoring wells were developed in order to remove fine sediment buildup and drilling debris from within the screened interval. The purpose of groundwater monitoring well development is to allow for future collection of representative data such as the hydraulic and chemical conditions of the screened geological unit.

Bailers were used to develop the groundwater monitoring wells. The diameter of the bailer was slightly smaller than the diameter of the well screen and was used to surge the groundwater through the well screen in order to agitate and remove loose sediment and debris. Groundwater monitoring wells were surged by dropping the bailer into the water column and moving it up and down several times throughout the screened interval. During this process three to five well volumes of groundwater were removed from the groundwater monitoring well. If the groundwater monitoring well did not yield enough water, it was purged dry.

3.3.3 Groundwater Monitoring Well Topographic Survey

Vertical locations of the top of each groundwater monitoring well PVC pipe and the ground surface at the base of each groundwater monitoring well was measured by completing a closed loop differential survey using a Topsite T1A Auto Level. Vertical locations were measured by assigning a permanent on-site structure a generic 1 m datum as a reference point (benchmark). If no permanent structures were available for reference, the top of one of the groundwater monitoring well PVC pipes was assigned as the reference point. Measured vertical locations were accurate to within 0.003 m. At least one turning point was included to verify the accuracy of the instrument.

The horizontal location of each groundwater monitoring well was determined using a Trimble hand held global positioning system (GPS) accurate to within 3.0 m.

3.3.4 Groundwater Sampling

The static water level in each groundwater monitoring well was measured to the nearest 0.001 m, using an interface meter prior to sample collection. Three well volumes of standing water from within the groundwater monitoring well were removed using dedicated bailers for each. If the groundwater monitoring well did not yield three well volumes of water, it was purged dry and samples were collected once groundwater had re-entered the well.

Samples were collected from all groundwater monitoring wells using containers provided by the laboratory. Field parameters, including temperature, pH, EC, oxidation-reduction potential (ORP) and dissolved oxygen (DO), were measured and recorded at the time of sample collection. Samples were collected and preserved in accordance with the *Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment, Volume 4: Analytical Methods* (Canadian Council of Ministers of the Environment, 2016).

3.3.5 Laboratory Analysis

Samples were submitted to Element Materials Technology Inc. for laboratory analyses. Samples were submitted for laboratory analysis of petroleum hydrocarbon parameters. The laboratory data report is included in Appendix E.

3.3.6 Quality Assurance and Quality Control

The quality assurance and quality control (QA/QC) program included the collection of blind duplicates from 10% of the groundwater samples. Samples were submitted for laboratory analyses of petroleum hydrocarbon parameters.

The sample was homogenously mixed and separated into equal bottle sets. Duplicate samples are a method of evaluating sampling procedures and laboratory precision. Interpretation of results outlined below is based on the *Realistic Criteria for the Evaluation of Field Duplicate Sample Results* (Zeiner, 1994).

The data were interpreted using the following scenarios:

- If both results are below laboratory detection limits, the field duplicate displays acceptable precision
- If one result is below laboratory detection limits and the other is equal to or above laboratory detection limits, the absolute value of the difference between the detected result and one half of the laboratory reporting limit should be less than or equal to the laboratory reporting limit

$$| \text{Detected result} - (0.5) (\text{Laboratory reporting limit}) | \leq \text{Laboratory reporting limit}$$

- If both results are equal to or above laboratory detection limits, there are two possibilities:
 1. If one or both results are less than or equal to five times the laboratory reporting limit, the absolute difference between the results should be less than or equal to the laboratory reporting limit

$$| \text{Result 1} - \text{Result 2} | \leq \text{Laboratory reporting limit}$$

2. When both results are greater than five times the laboratory reporting limit, the relative percent difference (RPD) between the results should be less than or equal to 20%. The RPD is calculated as follows:

$$\text{RPD} = \frac{\text{Absolute difference between the results}}{\text{Mean of the two results}} \times 100$$

Where the absolute difference or the RPD exceed the criteria outlined above, positive results should be considered estimates and any conclusions drawn from these estimates should be done with caution.

4.0 Guideline Selection

The petroleum hydrocarbon results were compared to the *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* (AT1 Guidelines; Alberta Environment and Parks, 2019). The land use and particle size were determined with reference to the AT1 Guidelines. As there were no data collected to exclude any exposure pathways, all default exposure pathways were applied during the interpretation of results.

4.1 Land Use

The land use surrounding the site is defined as commercial area (Alberta Environment and Parks, 2019).

4.2 Particle Size

Particle size analysis was performed on eight samples from MW19-01 to MW19-03. Soil grain retention ranged from 34.4 to 75.2% (Table 1). Based on laboratory results and borehole log data, fine and coarse-grained guidelines were applied at this site (Alberta Environment and Parks, 2019).

5.0 Results and Discussion

The soil characterization results are summarized in Table 1. Groundwater characterization results are summarized in Tables 2 to 4. Groundwater monitoring well locations are presented on Figure 2.

5.1 Soil

5.1.1 Underground Storage Tank Area

Three boreholes (MW19-01 to MW19-03) were advanced to assess the UST Area. Select soil samples were submitted for laboratory analysis of petroleum hydrocarbon parameters. All analyzed parameters were below applied guidelines.

5.2 Groundwater

The groundwater conditions were monitored at the site with the installation of three groundwater monitoring wells (MW19-01 to MW19-03).

5.2.1 Hydrogeological Conditions

The depth to groundwater ranged from 1.711 mbgs (MW19-02) to 1.854 mbgs (MW19-03). Groundwater level data collected on November 7, 2019, were used to develop a groundwater flow map (Figure 3). The general shallow groundwater flow direction at the site was to the northwest.

5.2.2 Field Parameters

Field measurement parameters are summarized below.

- Field temperature ranged from 6.22 to 7.60 °C
- Field pH ranged from 6.98 to 7.57
- Field EC ranged from 928 to 2,443 µS/cm
- Field ORP ranged from -18.3 to 16.1 mV
- Field DO ranged from 2.91 to 9.13 mg/L

5.2.3 Groundwater Monitoring Wells

One sample from each groundwater monitoring well was submitted for laboratory analysis of petroleum hydrocarbon parameters. All analyzed parameters were below applied guidelines.

5.2.4 Quality Assurance and Quality Control

A duplicate groundwater sample was collected from groundwater monitoring well MW19-01 as part of the QA/QC program. The results of the QA/QC are presented in Table 5.

The results of the QA/QC interpretation indicated that all parameters were within QA/QC limits.

6.0 Conclusions

All analyzed soil and groundwater parameters were below/within applied guidelines.

7.0 References

- Abacus Datagraphics Ltd. (2019). *AbaData 2.0* [Software]. Retrieved from <http://www.abadata.ca/AbaData2> on November 7, 2019.
- Alberta Environment and Parks. (2019). *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*. Edmonton, Alberta.
- Canadian Council of Ministers of the Environment. (2016). *Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment, Volume 4: Analytical Methods*. Mississauga, Ontario.
- Hydrogeological Consultants Ltd. (1999). *County of Vermilion River No. 24 Part of the North Saskatchewan and Battle River Basins Parts of Tp 045 to 056, R 01 to 07, W4M Regional Groundwater Assessment*. Edmonton, Alberta.
- Natural Regions Committee. (2006). *Natural Regions and Subregions of Alberta*. Compiled by D.J. Downing and W.W. Pettapiece. Edmonton, Alberta: Government of Alberta.
- Ridgeline Canada Inc. (2014). *18009928 Alberta Inc. Phase 2 Environmental Site Assessment Plan 112 4353, Block 46, Lot 56, 2702- 50th AVE*. Calgary, Alberta.
- Zeiner, S.T. (1994). *Realistic Criteria for the Evaluation of Field Duplicate Sample Results*. Proceedings of Superfund XV. Washington, D.C.

8.0 Limitations

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This report and all documents, recommendations (written or oral), and other services (hereafter referred to as "report") were prepared or provided by Vertex Professional Services Ltd. (Vertex), a Division of Vertex Resources Group Ltd., for 1465770 Alberta Ltd. (hereafter referred to as the "client"). It is intended for the sole and exclusive use of the client. No other party may use or rely upon this report or any portion thereof without the express written consent of Vertex. Vertex accepts no responsibility for use of portions of the report by the client without reference to the whole report. Vertex accepts no responsibility for the accuracy of the data, analysis or recommendations contained in this report when the report is used by any party other than the client unless authorized in writing by Vertex. Any unauthorized use of the report is at the sole risk of the user.

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8.4 Limitations of Report

This report has been prepared for the specific site, development, design objectives and purposes that were described to Vertex by the client. The applicability and reliability of the findings, recommendations, suggestions, conclusions and opinions expressed in this report are only valid to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Vertex, and unless Vertex is specifically

requested by the client to review and revise the report in light of such alteration or variation. The findings, evaluations, recommendations, suggestions, opinions and conclusions contained in this report have been made on the basis of conditions in existence at the time of site inspections and on the basis of information provided to Vertex by the client and others. Vertex has relied in good faith upon representations and information provided by the client and others concerning the site. Vertex accepts no responsibility for any error, deficiency, misstatement or inaccuracy contained in this report as a result of errors, deficiencies, misstatements, omissions, misrepresentations or fraudulent acts of persons providing information to Vertex.

The information in this report is based on Vertex's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Vertex accepts no responsibility for independent conclusions, interpretations, interpolations and/or decisions of the client, or others who may come into possession of the report, or any part thereof, which may be based on information contained in the report. This restriction of liability includes specifically, but is not limited to, decisions made to either purchase or sell land.

8.5 Standard of Care

This report has been prepared in accordance with current generally accepted environmental consulting practices under similar conditions in the jurisdiction in which the services are provided. No other warranty, express, implied or statutory, is made or intended by Vertex with respect to the report or in any communication or opinion (written or oral).

Vertex's findings, conclusions, recommendations and opinions are preliminary and based in part upon the information obtained from the subsurface exploration referenced in the report. The excavations and associated laboratory testing indicate subsurface, groundwater and chemical conditions only at the specific locations and times investigated, only to the depth penetrated and only for the soil and chemical properties tested. It should be noted that chemicals, compounds or materials other than those described in this report could be present in the site environment. The client is advised that subsurface conditions may vary between the investigation points and over time. The subsurface interpretation provided in this report is a professional opinion of conditions and not a certification of site conditions. As the nature and extent of subsurface variations or other latent conditions become evident, the client should notify Vertex immediately so that Vertex may re-evaluate their conclusions, recommendations and opinions.

8.6 Uncertainty of Conditions

The client is advised that no environmental site investigation or remediation can wholly eliminate uncertainty regarding environmental conditions in connection with a property. This investigation is intended to reduce, but not eliminate the uncertainty regarding environmental conditions. Conclusions regarding the condition of the site investigated do not represent a warranty that all areas within the site and beneath structures are of the same quality or condition as those sampled. Further, contamination could also exist in forms not indicated by the investigation. Vertex's work was based in part upon the environmental quality guidelines and regulations in effect when the work was begun. Further regulatory changes may require assessment of the findings of this investigation.

8.7 Warranty of Title, Waste Ownership

The client maintains all responsibility and liability for the environmental conditions on-site. At no time shall Vertex assume ownership or title for any hazardous or contaminated materials which exist at or have been removed from the site.

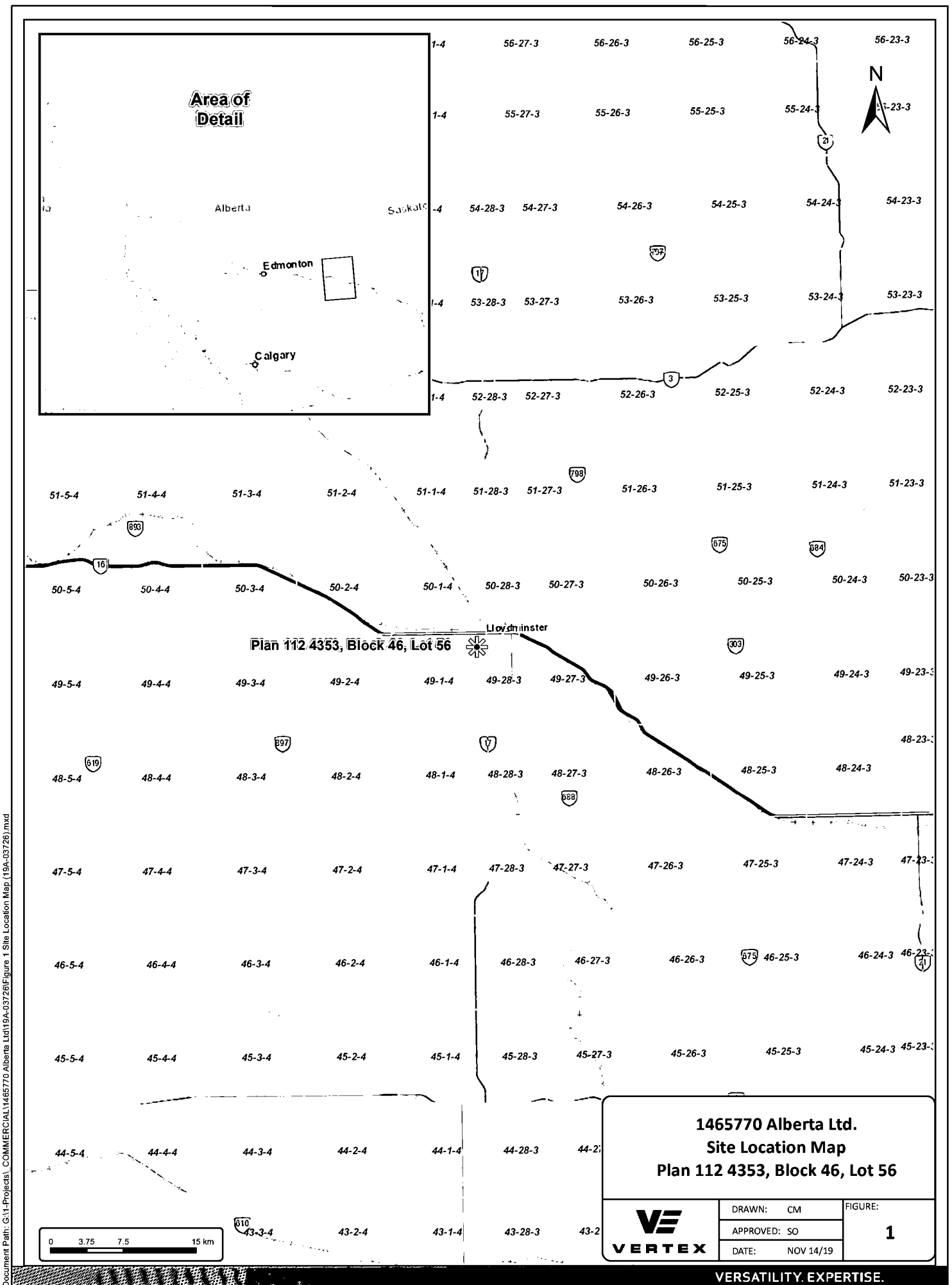
8.8 Limitation of Liability

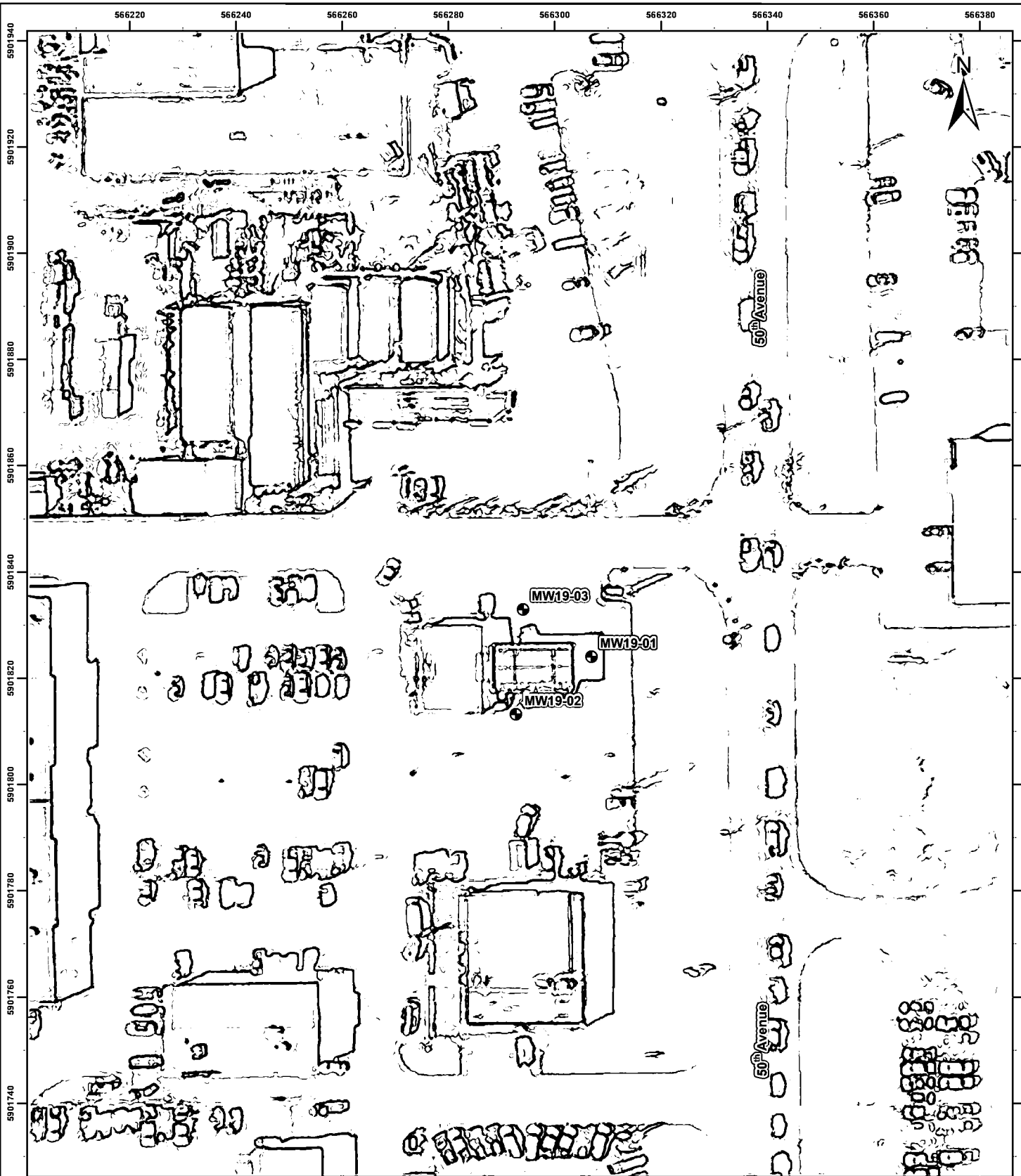
The client recognizes that environmental consulting projects have the potential to encounter dangerous or hazardous substances including the accidental release of those substances. To the maximum extent permitted by law and notwithstanding anything else in the agreement, the client agrees to limit the liability of Vertex and its employees, officers, directors, subcontractors and agents for all claims which arise out of the acts, error(s) or omission(s) of Vertex in performing the services under this agreement to the lesser of \$50,000 or the total fees actually paid to Vertex under this agreement within the prior one year. This limitation applies to all injuries, damages, claims, losses, expenses and defense costs (including all legal fees and disbursements), whether based in contract, negligence, strict liability, statutory, trespass, indemnity, misrepresentation or any other theory of liability. Vertex shall not be held responsible under any circumstance for the lost revenues, loss of use or property, cost of capital, lost profits, or other special or indirect, consequential or punitive damages or for any claims whatsoever presented to Vertex more than two years after the substantial completion of the service of the agreement.

8.9 Indemnity

In consideration of the provision of the services by Vertex, which are for the client's benefit, the client agrees to hold harmless and to indemnify and defend Vertex, its directors, officers, servants, agents, employees, workers and contractors (hereafter referred to as the "company") from and against any and all claims, third party claims, penalties, fines, losses, damages, demands, disputes, liability including solicitor-client costs arising or alleged to arise either in whole or in part as a result of services provided by the company to client, regardless of any act or omission on the part of the company and regardless of whether the claim is brought against Vertex for breach of contract or tort.

FIGURES





Legend

- Groundwater Monitoring Well

0 5 10 20 m
SCALE 1:1,000
UTM ZONE 12N

1465770 Alberta Ltd.
Site Schematic
1465770 Alberta
Ltd.

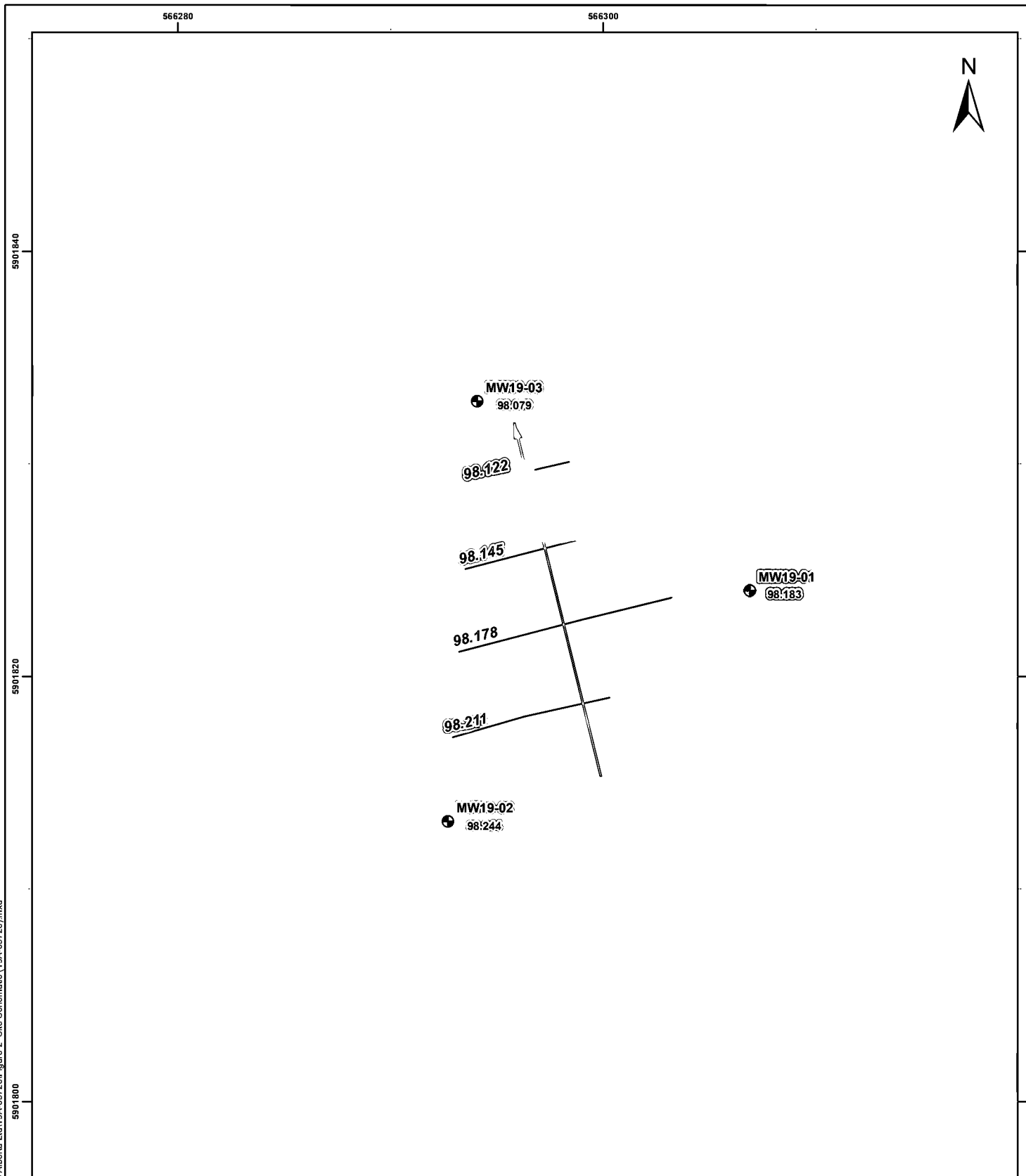


DRAWN:	CM
APPROVED:	JW
DATE:	OCT 22/19

FIGURE:

2

VERSATILITY. EXPERTISE.



Legend

-  Groundwater Monitoring Well
-  Groundwater Contours
-  Groundwater Flow Direction
- 97.976** Groundwater Elevation (m)

0 1.25 2.5 5 m
SCALE 1:250
UTM ZONE 12N

Groundwater Flow Map for November 7, 2019 1465770 Alberta Ltd.



DRAWN:	CM
APPROVED:	LK
DATE:	NOV 14/19

FIGURE:

3

TABLES

Table 1. Soil Characterization - Petroleum Hydrocarbon Parameters
1465770 Alberta Ltd.
Plan 112 4353, Block 46, Lot 56
Project #: 19A-03726
Lab Report: 1384483

Sample Description			Field Screening	Physical Properties		Petroleum Hydrocarbons							
Location	Depth (mbgs)	Date	Volatile Organic Compounds	Moisture	Particle Size (> 75 µm)	Volatile					Extractable		
						Benzene	Toluene	Ethylbenzene	Xylenes (o,m & p)	F1 - BTX (C6 - C10)	F2 (> C10 - C16)	F3 (> C16 - C34)	F4 (> C34 - C50)
			(ppm)	(%)	(%)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AT1 Guidelines	Commercial												
	Fine-grained Surface Soil		-	-	-	0.046	0.52	0.073	0.99	320	260	2,500	6,600
	Coarse-grained Surface Soil		-	-	-	0.078	0.12	0.14	1.9	270	260	1,700	3,300
	Fine-grained Subsoil (> 3.0 m)		-	-	-	0.046	0.52	0.073	0.99	800	1,000	4,300	10,000
	Coarse-grained Subsoil (> 3.0 m)		-	-	-	0.078	0.12	0.14	1.9	440	520	3,500	10,000
Underground Storage Tank Area													
MW19-01	0.4 - 0.6	October 16, 2019	35	-	-	-	-	-	-	-	-	-	-
	1.0 - 1.2	October 16, 2019	10	12.0	36.7	<0.005	<0.02	<0.005	<0.03	<10	<25	<50	<100
	2.0 - 2.2	October 16, 2019	15	-	-	-	-	-	-	-	-	-	-
	3.0 - 3.2	October 16, 2019	5	14.1	35.5	<0.005	<0.02	<0.005	<0.03	<10	<25	68	<100
	4.0 - 4.2	October 16, 2019	5	-	-	-	-	-	-	-	-	-	-
	4.3 - 4.5	October 16, 2019	0	12.8	-	<0.005	<0.02	<0.005	<0.03	<10	<25	134	185
MW19-02	0.4 - 0.6	October 16, 2019	5	-	-	-	-	-	-	-	-	-	-
	1.0 - 1.2	October 16, 2019	0	-	-	-	-	-	-	-	-	-	-
	2.0 - 2.2	October 16, 2019	0	12.9	36.8	<0.005	<0.02	<0.005	<0.03	<10	<25	<50	<100
	3.0 - 3.2	October 16, 2019	15	13.0	37.8	<0.005	<0.02	<0.005	<0.03	<10	<25	<50	<100
	4.0 - 4.2	October 16, 2019	10	-	-	-	-	-	-	-	-	-	-
	4.3 - 4.5	October 16, 2019	10	11.9	34.4	<0.005	<0.02	<0.005	<0.03	<10	<25	114	124
MW19-03	0.4 - 0.6	October 16, 2019	20	-	-	-	-	-	-	-	-	-	-
	1.0 - 1.2	October 16, 2019	0	11.4	40.1	<0.005	<0.02	<0.005	<0.03	<10	<25	<50	<100
	2.0 - 2.2	October 16, 2019	0	-	-	-	-	-	-	-	-	-	-
	3.0 - 3.2	October 16, 2019	10	12.3	75.2	<0.005	<0.02	<0.005	<0.03	<10	<25	85	211
	4.0 - 4.2	October 16, 2019	10	-	-	-	-	-	-	-	-	-	-
	4.3 - 4.5	October 16, 2019	10	12.5	35.5	<0.005	<0.02	<0.005	<0.03	<10	<25	107	145

AT1 Guidelines - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (Alberta Environment and Parks, 2019)
Subsoil guidelines applied for petroleum hydrocarbon results below 3.0 m (Ecological Direct Soil Contact pathway removed)

" - " - No guideline/not analyzed

Shading indicates values exceeding/outside of applied guidelines

Table 2. Groundwater Characterization - Installation Details and Groundwater Surface Elevations
1465770 Alberta Ltd.
Plan 112 4353, Block 46, Lot 56
Project #: 19A-03726

Sample Description		Ground Surface Elevation	Top of Casing Elevation	Depth of Screened Interval	Depth of Sand Interval	Depth to Groundwater	Depth to Groundwater	Depth to Bottom of Well	Groundwater Surface Elevation
Location	Date								
		(mard)	(mard)	(mbgs)	(mbgs)	(mbtoc)	(mbgs)	(mbgs)	(mard)
Groundwater Monitoring Wells									
MW19-01	November 7, 2019	99.965	99.883	1.5 - 4.5	1.3 - 4.5	1.864	1.782	4.5	98.183
MW19-02	November 7, 2019	99.955	99.821	1.5 - 4.5	1.3 - 4.5	1.845	1.711	4.5	98.244
MW19-03	November 7, 2019	99.933	99.822	2.0 - 3.0	1.8 - 3.0	1.965	1.854	3.0	98.079

mard - Metres above relative datum
mbgs - Metres below ground surface
mbtoc - Metres below top of casing

Table 3. Groundwater Characterization - Field Measured Parameters
1465770 Alberta Ltd.
Plan 112 4353, Block 46, Lot 56
Project #: 19A-03726

Sample Description		Temperature	pH	Electrical Conductivity	Oxidation/Reduction Potential	Dissolved Oxygen
Location	Date					
		(°C)	(units)	(µS/cm)	(mV)	(mg/L)
Groundwater Monitoring Wells						
MW19-01	November 7, 2019	7.60	6.98	2,439	13.7	5.27
MW19-02	November 7, 2019	7.61	7.44	2,443	16.1	9.13
MW19-03	November 7, 2019	6.22	7.57	928	-18.3	2.91

" - " - No units/not analyzed

Table 4. Groundwater Characterization - Petroleum Hydrocarbon Parameters

1465770 Alberta Ltd.

Plan 112 4353, Block 46, Lot 56

Project #: 19A-03726

Lab Report: 1390139

Sample Description		BTEX				F1 - F2	
Location	Date	Benzene	Toluene	Ethylbenzene	Xylenes	F1 - BTEX (C ₆ - C ₁₀)	F2 (> C ₁₀ - C ₁₆)
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
AT1 Guidelines	Commercial/Industrial						
	Fine-grained Soil	0.005	0.024	0.0016	0.02	2.2	1.1
	Coarse-grained Soil		0.021				
Groundwater Monitoring Wells							
MW19-01	November 7, 2019	<0.001	<0.0004	<0.0010	<0.001	<0.1	<0.1
MW19-02	November 7, 2019	<0.001	<0.0004	<0.0010	<0.001	<0.1	<0.1
MW19-03	November 7, 2019	<0.001	<0.0004	<0.0010	<0.001	<0.1	<0.1
MW19-04 (Dup of MW19-01)	November 7, 2019	<0.001	<0.0004	<0.0010	<0.001	<0.1	<0.1

AT1 Guidelines - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (Alberta Environment and Parks, 2019)

" - " - No guideline/not analyzed

Dup - Duplicate sample

Shading indicates values exceeding/outside of applied guidelines

Table 5. Groundwater Characterization - Quality Assurance/Quality Control
1465770 Alberta Ltd.
Plan 112 4353, Block 46, Lot 56
Project #: 19A-03726

Sample Description		BTEX				F1 - F2	
Location	Date	Benzene	Toluene	Ethylbenzene	Xylenes	F1 - BTEX (C ₆ - C ₁₀)	F2 (> C ₁₀ - C ₁₆)
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW19-01	November 7, 2019	<0.001	<0.0004	<0.0010	<0.001	<0.1	<0.1
MW19-04 (Dup of MW19-01)	November 7, 2019	<0.001	<0.0004	<0.0010	<0.001	<0.1	<0.1
Reported Detection Limit		<0.001	<0.0004	<0.0010	<0.001	<0.1	<0.1
Relative Percent Difference		0.00	0.00	0.00	0.00	0.00	0.00
Pass/Fail		Pass	Pass	Pass	Pass	Pass	Pass

Relative Percent Difference = The absolute difference between the original and duplicate values divided by their arithmetic mean multiplied by 100

Interpretation of results based on Zeiner, 1994

Dup - Duplicate sample

Shading indicates values exceeding QA/QC limits

APPENDIX A

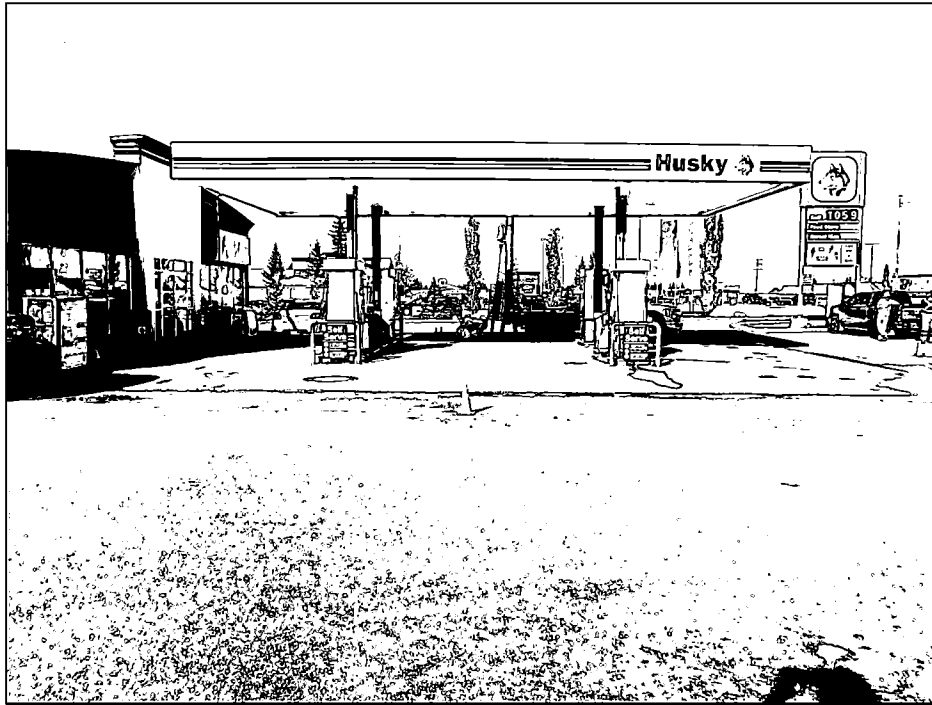


Photo 1. Viewing north toward convenience store and gas pump shelter

Photo Date: October 16, 2019

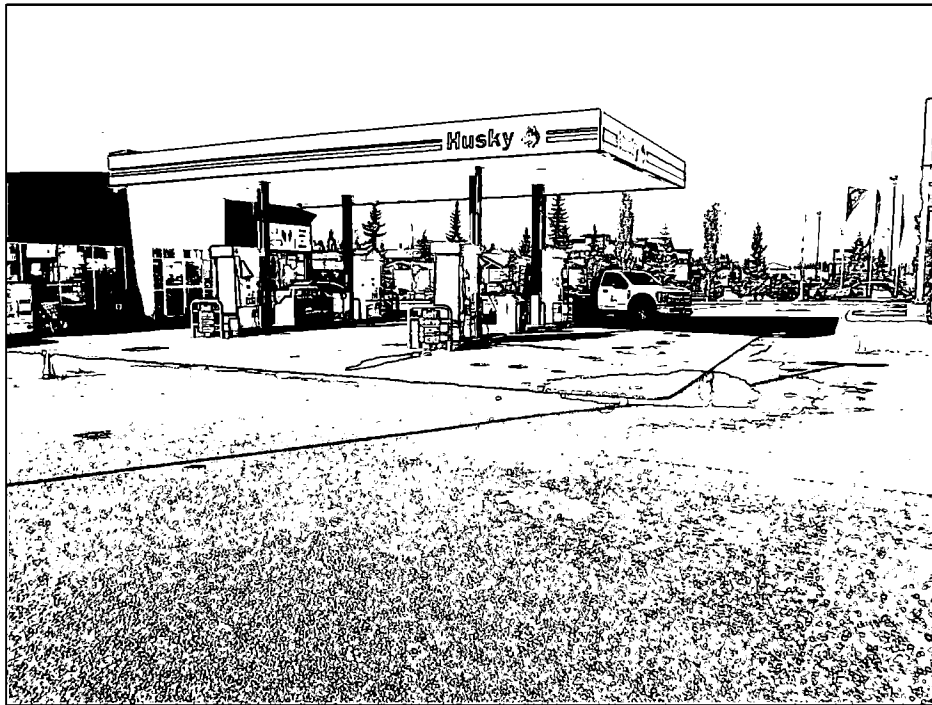


Photo 2. Viewing northwest toward convenience store and gas pump shelter

Photo Date: October 16, 2019



Photo 3. Viewing west toward convenience store and gas pump shelter

Photo Date: October 16, 2019

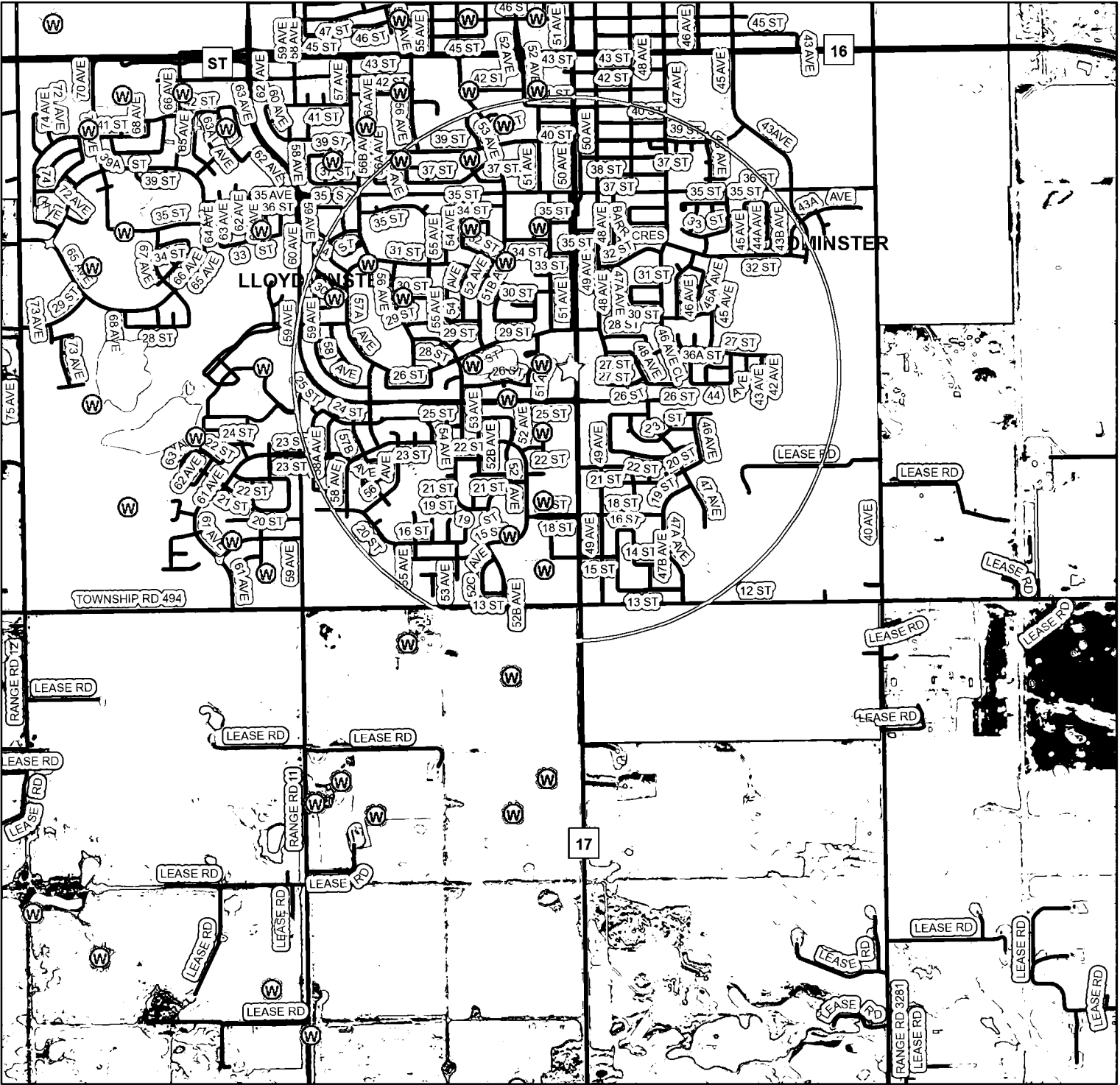


Photo 4. Viewing south toward MW19-03 and Top Gear Contracting Ltd. drill truck

Photo Date: October 16, 2019

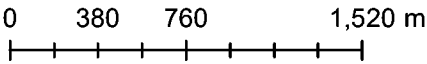
APPENDIX B

Plan 112 4353, Block 46, Lot 56



Thursday, November 7, 2019

1:32,627



ID	Distance	Direction	Location	Latitude	Longitude	Well Owner	Depth (ft)	Casing Base (ft)	Drill Date	Type	Purpose
Water Wells within 0 - 1600 meters of Well											
221383	148.46	281	16-25-49-1W4	53.261642	-110.008646	SMITH, BILL LLOYDMINSTER	210.00	172.00	FEB 2 1966	New Well	Domestic
221385	148.46	281	16-25-49-1W4	53.261642	-110.008646	JONES, R.J. LLOYDMINSTER	176.00	0.00	N/A	Federal Well Survey	Domestic & Stock
221391	385.91	243	NE-25-49-1W4	53.259834	-110.011661	BEISEL, JERRY 3008, 52 AVE LLOYDMINSTER	168.00	158.00	DEC 3 1981	New Well	Domestic
221380	398.76	201	9-25-49-1W4	53.258026	-110.008646	SALT, ENOCH LLOYDMINSTER, SASK	161.00	0.00	MAY 29 1959	New Well	Domestic
221387	398.76	201	9-25-49-1W4	53.258026	-110.008646	MAINVILLE, BERNIE LLOYDMINSTER	197.00	162.00	JUN 5 1980	New Well	Domestic
221389	398.76	201	9-25-49-1W4	53.258026	-110.008646	LAWRENCE, HOWARD 2902, 54 AVE LLOYDMINSTER	180.00	161.00	JUL 23 1981	New Well	Domestic
221392	548.39	272	15-25-49-1W4	53.261642	-110.014677	MCELWRICK, RON 3408, 55 AVE LLOYDMINSTER	200.00	174.00	DEC 2 1981	New Well	Domestic
221448	723.82	331	SE-36-49-1W4	53.267073	-110.011674	BAUML, DON 5402, 31 ST LLOYDMINSTER	217.00	158.00	JUL 9 1980	New Well	Domestic
221451	723.82	331	SE-36-49-1W4	53.267073	-110.011674	GORDON, AL 3210, 55 AVE LLOYDMINSTER	178.00	168.00	MAY 20 1982	New Well	Irrigation
221453	723.82	331	SE-36-49-1W4	53.267073	-110.011674	BENNETT, WALLACE 3301, 53 AVE LLOYDMINSTER	218.00	180.00	JUN 20 1983	New Well	Irrigation
222889	723.82	331	SE-36-49-1W4	53.267073	-110.011674	DRURY, RUSS LLOYDMINSTER	160.00	0.00	N/A	Chemistry	Domestic
222890	723.82	331	SE-36-49-1W4	53.267073	-110.011674	JOHNSON, GERALD 3119-51 AVE, LLOYDMINSTER T9V 1H9	180.00	0.00	N/A	Chemistry	Domestic
222891	723.82	331	SE-36-49-1W4	53.267073	-110.011674	ERICK, FRANK 5123-31 ST, LLOYDMINSTER T9V 1L3	185.00	0.00	N/A	Chemistry	Domestic & Irrigation
222892	723.82	331	SE-36-49-1W4	53.267073	-110.011674	ASCHENBRENNER, M. 5305-33 ST, LLOYDMINSTER T9V 1G4	0.00	0.00	N/A	Chemistry	Domestic
221377	787.17	190	8-25-49-1W4	53.254410	-110.008645	SALT, H. LLOYDMINSTER	18.00	18.00	N/A	Federal Well Survey	Domestic & Stock
221454	848.91	349	8-36-49-1W4	53.268881	-110.008658	LLOYDMINSTER CAR & MOBILE SALE LLOYDMINSTER	197.00	169.00	NOV 22 1983	New Well	Domestic
221449	1000.01	326	7-36-49-1W4	53.268881	-110.014690	GEIER, HOWARD 5410, 30 ST LLOYDMINSTER	200.00	139.00	MAY 21 1981	New Well	Domestic
221450	1000.01	326	7-36-49-1W4	53.268881	-110.014690	MATWEK, NICK 5309, 35 ST LLOYDMINSTER	184.00	178.00	MAY 18 1982	New Well	Domestic
221452	1000.01	326	7-36-49-1W4	53.268881	-110.014690	DOYLE, ALAN 2910, 55 AVE LLOYDMINSTER	190.00	180.00	JUN 1 1983	New Well	Domestic
221372	1034.5	199	SE-25-49-1W4	53.252602	-110.011660	EMMERSON, J. LLOYDMINSTER	140.00	0.00	JAN 1 1925	Federal Well Survey	Domestic & Stock
221373	1034.5	199	SE-25-49-1W4	53.252602	-110.011660	BAUER, ED. 5114, 30 ST LLOYDMINSTER	190.00	164.00	MAY 7 1981	New Well	Domestic

221376	1034.5	199	SE-25-49-1W4	53.252602	-110.011660	SHORTT, LYLE 5111, 30 ST LLOYDMINSTER	172.00	157.00	MAY 25 1981	New Well	Domestic
288905	1034.5	199	SE-25-49-1W4	53.252602	-110.011660	TINGLEY, JACK RR1, LLOYDMINSTER, SASK S9V 0X6	220.00	188.00	APR 6 1997	New Well	Domestic
221455	1045.03	294	3-36-49-1W4	53.265265	-110.020721	MCILWRICK, RAY 3305 57B AVE LLOYDMINSTER AB CA	164.00	160.00	APR 21 1981	New Well	Domestic
221370	1184.77	186	1-25-49-1W4	53.250795	-110.008645	KRUCIK, M. LLOYDMINSTER	172.00	170.00	SEP 10 1960	New Well	Domestic & Stock
221456	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	PORTH, CON 3003 55A AVE, LLOYDMINSTER	164.00	160.00	N/A	New Well	Domestic
221457	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	DREVER, MAL 3401, 55A AVE LLOYDMINSTER	167.00	162.00	SEP 1 1981	New Well	Domestic
221459	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	ROKLA, CHARLEY 3210, 54 AVE LLOYDMINSTER	200.00	177.00	SEP 20 1981	New Well	Irrigation
221460	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	JACQUES, J. 5618, 36 ST LLOYDMINSTER	191.00	176.00	MAY 12 1982	New Well	Domestic
221461	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	CAMPBELL, GARRY 2901, 57 AVE LLOYDMINSTER	178.00	168.00	MAY 5 1982	New Well	Domestic
221462	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	TETZ 3202, 55 AVE LLOYDMINSTER	178.00	168.00	MAY 18 1982	New Well	Irrigation
221463	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	ORIGINAL SIX WELL CLUB 5306 55A AVE, LLOYDMINSTER	178.00	168.00	MAY 9 1982	New Well	Irrigation
221464	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	ROMANOW, LARRY LLOYDMINSTER	178.00	168.00	APR 15 1982	New Well	Irrigation
221465	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	IRWIN, GERRY LLOYDMINSTER	182.00	167.00	MAY 20 1982	New Well	Irrigation
221466	1315.38	298	SW-36-49-1W4	53.267073	-110.023738	CASAVANT, MARCEL 3001, 58 AVE LLOYDMINSTER	178.00	168.00	MAY 13 1982	New Well	Irrigation
221481	1354.53	335	10-36-49-1W4	53.272497	-110.014691	KOHLRUSS, ED 4108, 53 AVE LLOYDMINSTER	237.00	206.00	JUN 14 1982	New Well	Domestic
221458	1420.92	287	4-36-49-1W4	53.265265	-110.026753	HAMILTON, CHRIS LLOYDMINSTER	184.00	181.00	JUL 14 1981	New Well	Domestic
221479	1480.98	346	NE-36-49-1W4	53.274305	-110.011675	BLYTH LLOYDMINSTER	130.00	128.00	JUN 22 1954	New Well	Domestic
221480	1480.98	346	NE-36-49-1W4	53.274305	-110.011675	KERR, BOB 5209, 38 ST LLOYDMINSTER	166.00	161.00	JUN 17 1981	New Well	Domestic
221485	1480.98	346	NE-36-49-1W4	53.274305	-110.011675	STEELE HTS WELL WISHERS ASSOC 2906, 52 AVE LLOYDMINSTER	178.00	168.00	JUN 2 1982	New Well	Irrigation
221486	1480.98	346	NE-36-49-1W4	53.274305	-110.011675	LAKEWOOD WATER GROUP 3203, 47 AVE LLOYDMINSTER	150.00	140.00	MAY 10 1982	New Well	Irrigation
221487	1480.98	346	NE-36-49-1W4	53.274305	-110.011675	TOTCHER, DALE 3706, 56 AVE LLOYDMINSTER	180.00	170.00	JUN 15 1982	New Well	Irrigation
221488	1480.98	346	NE-36-49-1W4	53.274305	-110.011675	ELBO, DENIS 5601, 35 ST LLOYDMINSTER	180.00	170.00	JUN 23 1982	New Well	Irrigation
221489	1480.98	346	NE-36-49-1W4	53.274305	-110.011675	DUECK, KEN 2705, 48 AVE LLOYDMINSTER	172.00	162.00	JUN 26 1982	New Well	Irrigation
221472	1561.41	322	11-36-49-1W4	53.272497	-110.020724	WATT, RAY 5605, 39 AVE LLOYDMINSTER	164.00	158.00	JUN 18 1981	New Well	Domestic
221476	1561.41	322	11-36-49-1W4	53.272497	-110.020724	GEORGE, GRANT 5311, 37 ST LLOYDMINSTER	177.00	166.00	JUL 13 1982	New Well	Domestic

APPENDIX C

Excavator Details

Caller Id: 146457
Contact: Jessica Wyatt
Company: Vertex Resource Group

Phone: 403-485-0237
Mobile: 403-485-0237
Email: jwyatt@vertex.ca

Dig Site and Ticket Details



[Open Map](#)

Environmental drilling 3 boreholes to 4.5m, and installing 3 ground water monitoring wells in the same locations.

Ticket Status	Original
Ticket Type	Project
Previous Ticket No.	Not Supplied
User Reference	
Ticket Date	2019-10-09T15:45:07-06:00
Work Start Date	2019-10-16T01:00:00-06:00
Address	2702 50 Ave Lloydminster T9V 2S3
Nearest Cross Street	Not Supplied
Type of work	Poles/Holes
Activity	Other
Excavation Method	Drilling
Excavation Depth	>3m
Public Property	None
Private Property	Commercial
Onsite Contact	Jessica Wyatt
Onsite Phone	403-485-0237
Municipality	Not Supplied
Nearest Community	Not Supplied
Rural Subdivision	Not Supplied
Lot No.	
Block No.	
Plan No.	

Your Responsibilities

- Do not proceed with any excavation until all notified asset owners have responded by providing clearance, OR by identifying the location of their facilities with maps OR by placing locate marks on the ground.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using the Before You Dig Partners service, you agree to our privacy policy and the terms and conditions set out at on our web site.
- **For more information, visit www.BeforeYouDigPartners.com**

Utility Owner Details

The public utility owners listed below with a Status of "Notification Sent" have been requested to respond to your request. They may contact you directly for clarification of your request details.

Station Code	Authority Name	Status
AE0351MA	ATCO ELECTRIC LTD. (AE0351MA)	Notification Sent
AE0351MS	ATCO ELECTRIC LTD. (AE0351MS)	Notification Sent
AGNLLDCT2	ATCOGAS, A DIVISION OF ATCOGAS AND PIPELINES LTD. (AGNLLDCT2)	Notification Sent
TELELLYD	TELUS COMMUNICATIONS INC (TELELLYD)	Notification Sent

END OF UTILITIES LIST

WALLEYE LOCATING LTD.



Main Office
2830 12 Ave
Wainwright, Ab
587-281-3776
walleyelocating@hotmail.com

" Keep Your Lines Tight "

Well Casing	●	U/G Pipeline	----
Well	✱	U/G Cable	
Survey Pin	△	A/G Pipe	=====
Power Pole	Ⓟ	Surveyed Bdy	=====
Telus Ped	Ⓣ	Temp Work Spc	=====
Elec Panel	ⓔ	Fence	—x—x—x—
Work Area or BHO	Ⓢ	Approx Loc. U/G Pipeline	- - - - -

Locator: Brad Armstrong Ph: 587-281-3776 Email: brad.arm@walleyelocating.ca

Date: Oct 16 2019 Location: 2702 50 Ave.

Client: 1465770 Alberta Ltd Contact: Irum Phone: 780-872-3521

Type of work: Enviro Drilling

Aoc / Job #

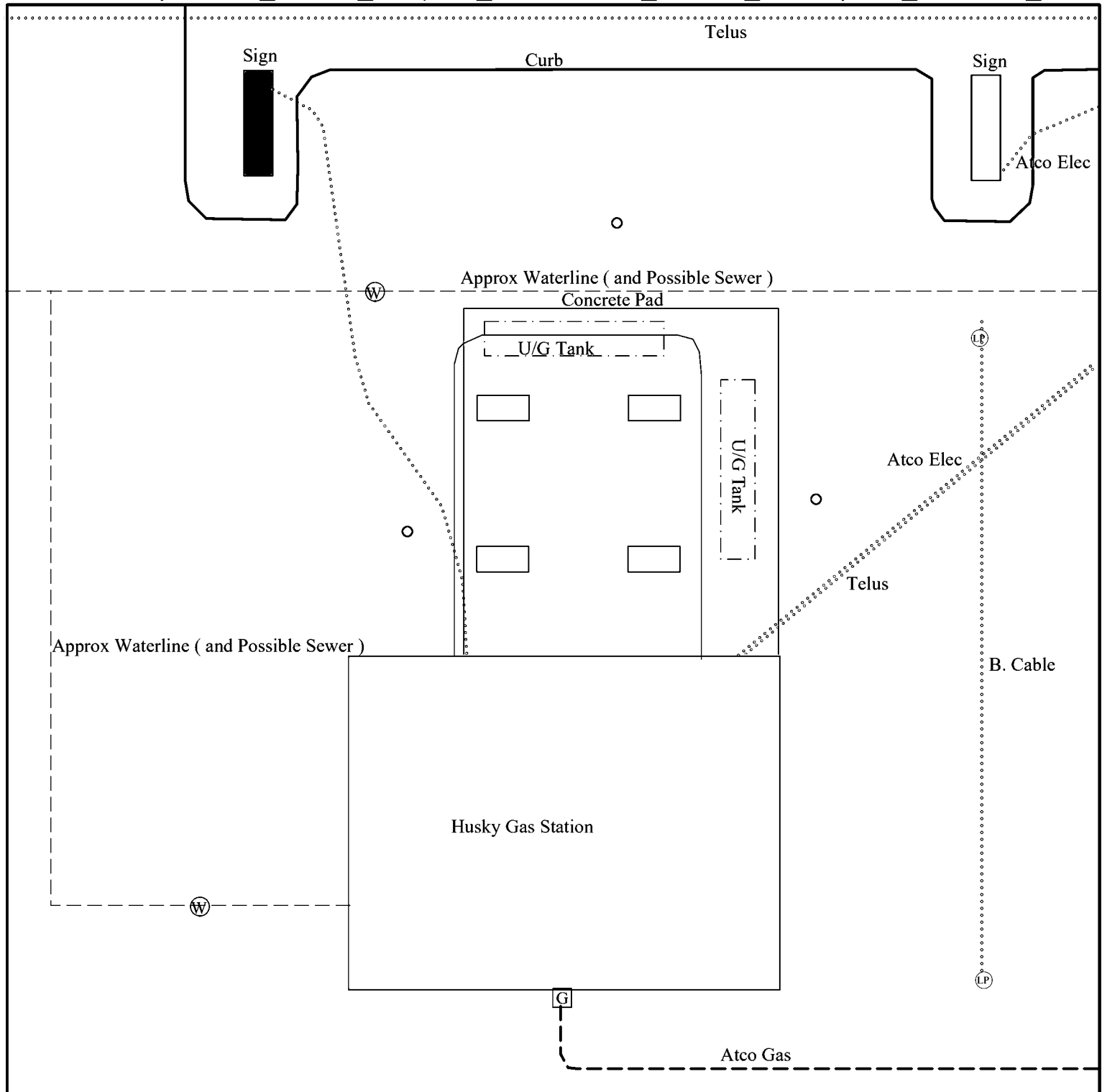
Locating Equip Used: Fuji PL960ac

Function Tested ☒ Freq. and Methods Used 27khz, 83khz indirect and direct

Locating Discrepancies / Difficulties: Possible Plastic Lines in the area, Unable to Locate

COMMENTS:

Documents Referenced: Pipeline Database ☒ Well Plats ☐ Survey Plans ☐ Historical Sketches ☐ AsBuilts ☐ Titles / Dispositions ☐ Ariel Photo ☐



Caution, there may be multiple buried facilities in trenches. All field locating is considered approximate, and is for information purposes only. All field locating was performed to the best of the locator's ability with the equipment and information that was gathered/supplied. This diagram is not to exact scale. Walleye Locating Ltd. is not liable for any untraceable, unlocatable, and/or unregistered buried facilities not marked in the field and/or not shown on this diagram. Walleye Locating Ltd. is not liable for any abandoned buried facilities and/or buried facilities without tracer wire where direct hookup is unavailable that are not located and/or not shown on this diagram. Walleye Locating Ltd. is not liable for any buried facilities underneath and/or within 5m of above ground metal facilities not located and/or not shown on this diagram - as bleed off occurs. Walleye Locating Ltd. is not liable for any other work and/or ground disturbance conducted at and/or near the location shown on this diagram. This diagram is for information purposes only. Any change in the location and/or scope of work will require additional locating. Should field locate markings go missing or are removed and/or destroyed, a new locate is required. Walleye Locating Ltd. cannot guarantee the depth, license number, size, type, substance, and/or number of buried facilities shown on this diagram. All field locates are coloured according to the APWA Uniform Colour Codes, and site specific colour coding matching this diagram

Ground Disturbance Permit

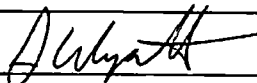
LOCATION (LSD): <u>2702-50 Ave LLOYDMINSTER, AB</u>		Date: <u>16/10/19</u>
On-Site Ground Disturbance Supervisor:	<u>JESSICA WYATT</u>	Ph No:
Area Operator and Supervisor:	<u>NA</u>	Ph No:
Contractor Company Name:	<u>TOP GEAR</u>	Ph No:
Contractor Foreman / Representative:	<u>SPENCER JILL</u>	Ph No: <u>303-218-7064</u>

GROUND DISTURBANCE CRITERIA CHECKLIST:	Y	N	N/A	GROUND DISTURBANCE COMMENTS
Before ground disturbance, have you:				All N/A's MUST be explained!
Obtained & Reconciled surveys, drawings, past files?	✓			
Obtained & Reconciled land titles certificate?	✓			
Obtained and Reconciled base maps and pipeline information?	✓			
Obtained and Reconciled as-built drawings of facilities?	✓			
Called One-Call-Systems and verified? (48 hours notice)	✓			
Located, marked, & mapped all underground facilities? Company used to complete private locate:	✓			
Contacted & Reconciled info with site operator and/or supervisor?	✓			
Searched for marker / identification signs? (Pipeline signs, etc)	✓			
Searched for visible signs of underground facilities? (Cut ROW's, lines going into buildings, etc.)	✓			
Obtained & Reconciled necessary crossing agreements?			✓	NO CROSSINGS
Obtained necessary landowner approvals?	✓			
Identified and marked overhead power lines?	✓			
Established length & width & depth of excavation?			✓	DRILLING - NOT EXCAVATING
Conducted a 30 m sweep of the area (Search Area)?	✓			
Arranged to hand expose lines within 5 m (Dig Zone)?			✓	NOT NECESSARY
Identified isolation points?			✓	
Determine if work will undermine structures or foundations?			✓	
Noted visible water course crossings?			✓	DRILLING URBAN DRILLING

Pre-Job Checklist: (at pre job / tailgate meeting)

Has the following been observed:	Y	N	N/A	Print	Sign
Has the client representative reviewed and approved work plan?	✓			Name:	
Has On-Site GD Supervisor and Contractor Foreman/Rep signed?	✓			Name:	
Is Ground Disturbance Criteria Checklist above complete?	✓				
Is a Site Specific Emergency Response Plan in place?	✓				
Is applicable documentation, drawings available on site?	✓				
Have Confined Space Entry egress requirements been addressed?			✓		
Have line size, operating pressure and transmitted substance(s) been identified? (Identify required safety equipment during toolbox safety meeting)	✓				
Have underground facilities been exposed?			✓		
Is equipment operator knowledgeable and competent?	✓			Name:	
Is a competent signal spotter person established for equipment operation?	✓			Name:	
Is spoil pile area established 1-m from edge of excavation?			✓		
Are barricades available and in place, if necessary?			✓	PILONS FOR TRAFFIC	
Has proper shoring and bracing been installed?			✓		
What proximity to underground facilities has been approved for this ground disturbance (Ensure no mechanical work within 60 cm (24 inches) of buried facility)?			✓		

On-Site Ground Disturbance Supervisor (Vertex Supervisor) and the Contractor Foreman / Representative mutually agree that the Ground Disturbance Criteria has been completely satisfied and that it is safe to proceed with the Ground Disturbance. (Both **MUST** be **signed off** before Ground Disturbance commences). Ensure foreign owners are notified 24 hours before backfilling. Complete backfill inspection, including pictures, as-builts and submit documentation for filing.

On-Site Ground Disturbance Supervisor: (Signature)	
Client Supervisor: (Signature)	
Contractor Foreman / Representative: (Signature)	

APPENDIX D

File #: 19A-03726

Borehole Number: MW19-01

Client: 1465770 Alberta Ltd.

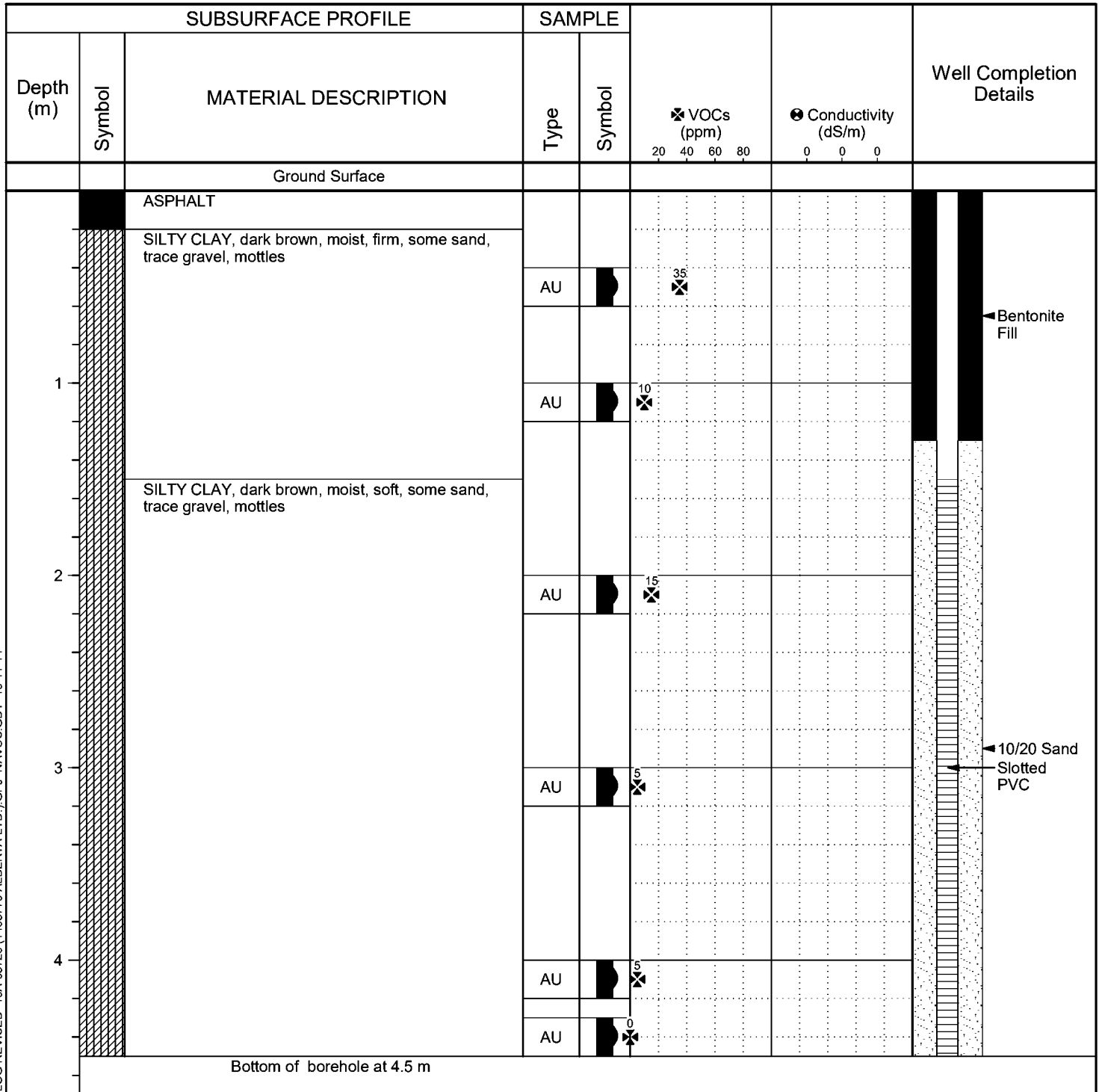
Area: Underground Storage Tank Area

Project Name: Phase 2 Environmental Site Assessment

GPS Coordinates: N: 5901824 E: 566307

Site Location: Plan 112 4353, Block 46, Lot 56

UTM Zone: 12



Drilling Method: 6" Solid Stem Auger

Drilling Date: October 16, 2019

Completed By: Susanne Melnyk

Drilling By: Top Gear Contracting Ltd.

Recorded By: Jessica Wyatt

Field Screening: RKL Eagle™

File #: 19A-03726

Borehole Number: MW19-02

Client: 1465770 Alberta Ltd.

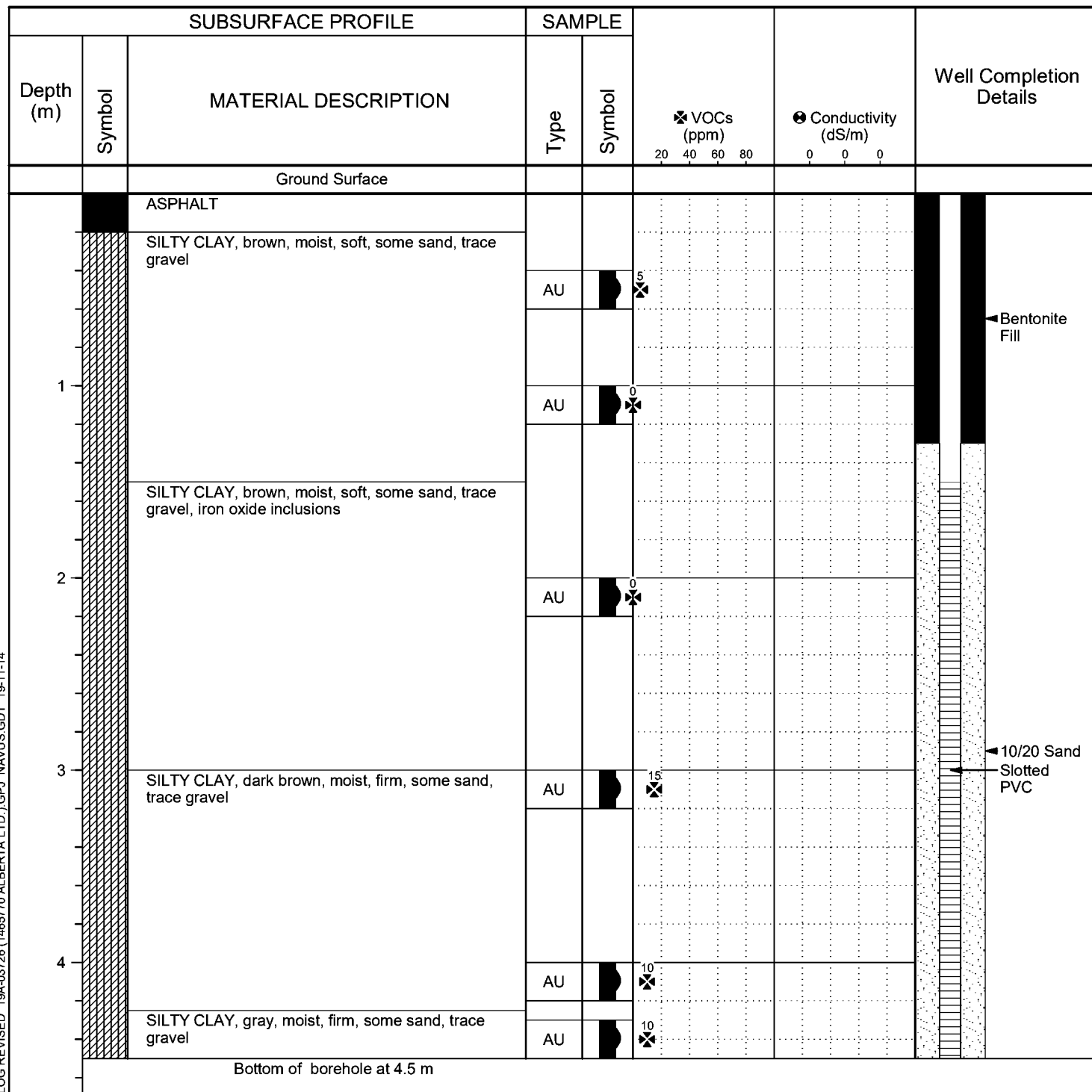
Area: Underground Storage Tank Area

Project Name: Phase 2 Environmental Site Assessment

GPS Coordinates: N: 5901813 E: 566293

Site Location: Plan 112 4353, Block 46, Lot 56

UTM Zone: 12



Drilling Method: 6" Solid Stem Auger

Drilling Date: October 16, 2019

Completed By: Susanne Melnyk

Drilling By: Top Gear Contracting Ltd.

Recorded By: Jessica Wyatt

Field Screening: RKL Eagle™

File #: 19A-03726

Borehole Number: MW19-03

Client: 1465770 Alberta Ltd.

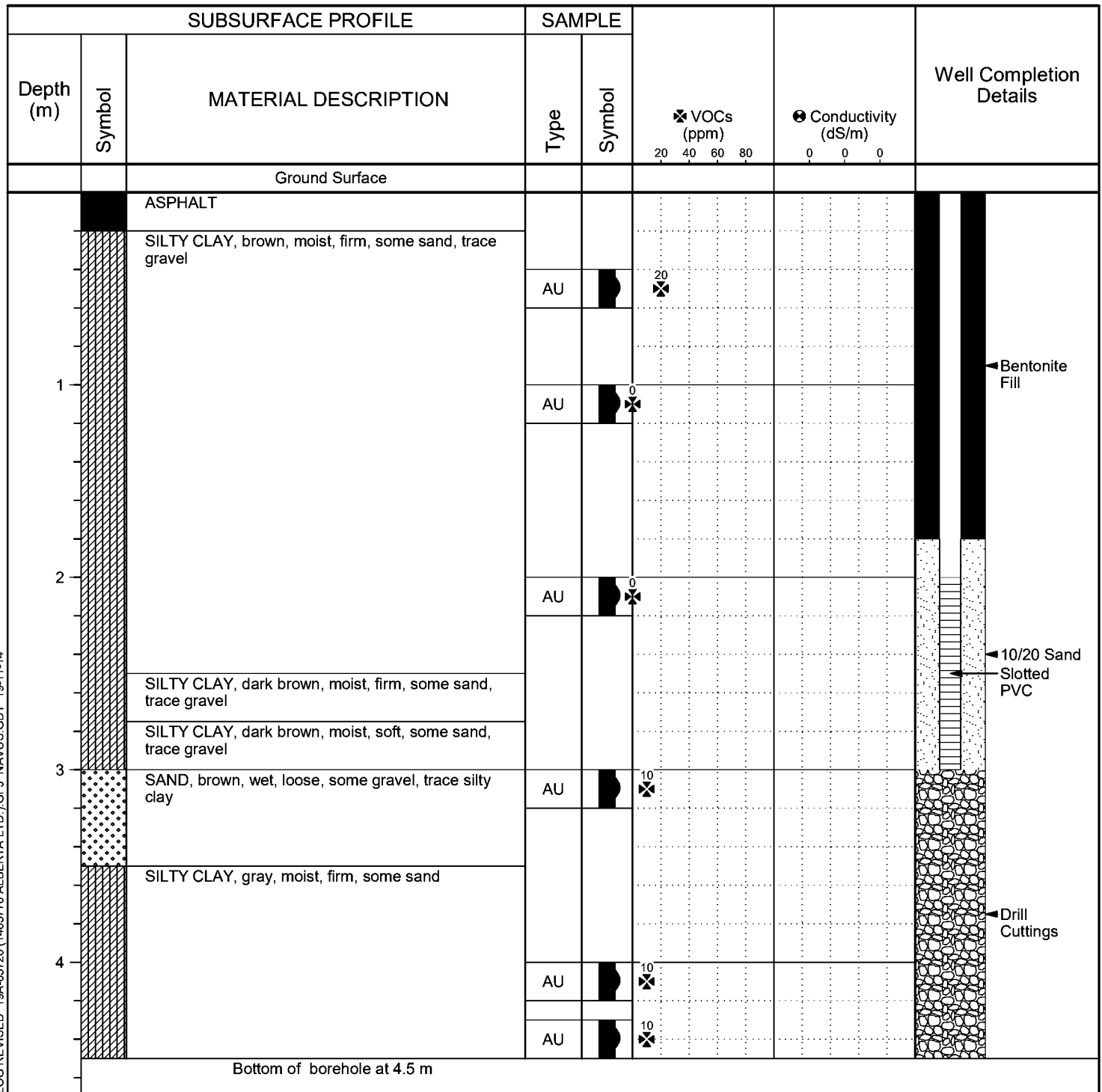
Area: Underground Storage Tank Area

Project Name: Phase 2 Environmental Site Assessment

GPS Coordinates: N: 5901833 E: 566294

Site Location: Plan 112 4353, Block 46, Lot 56

UTM Zone: 12



Drilling Method: 6" Solid Stem Auger

Drilling Date: October 16, 2019

Completed By: Susanne Melnyk

Drilling By: Top Gear Contracting Ltd.

Recorded By: Jessica Wyatt

Field Screening: RKL Eagle™

APPENDIX E

Report Transmission Cover Page

Bill To: Vertex Professional Services 200 - 1711 10th Ave SW Calgary, AB, Canada T3C 0K1	Project ID: 19A-03726 Project Name: Project Location: LSD: 2702-50Ave P.O.: Proj. Acct. code:	Lot ID: 1384483 Control Number: Date Received: Oct 18, 2019 Date Reported: Oct 24, 2019 Report Number: 2453062
Attn: Ashley Craig Sampled By: Jessica Wyatt Company: Vertex		

Contact	Company	Address
Accounts Payable	Vertex Professional Services	#121, 2055 Premier Way Sherwood Park, AB T8H 0G2 Phone: (403) 229-3969 Fax: (780) 464-3731 Email: ap@vertex.ca
Delivery	Format	Deliverables
Email - Single Report	PDF	Invoice
Ashley Craig	Vertex Professional Services	200 - 1711 10th Ave SW Calgary, AB T3C 0K1 Phone: (000) 000-0000 Fax: (403) 244-1202 Email: acraig@vertex.ca
Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / COA
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	Invoice
Email - Single Report	Vertex Custom Excel	Test Report

Notes To Clients:

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If the reader is not the intended recipient, you are hereby notified that any use, dissemination, distribution or copy of this transmission is strictly prohibited.
If you receive this transmission by error, or if this transmission is not satisfactory, please notify us by telephone.

Analytical Report

Bill To: Vertex Professional Services
200 - 1711 10th Ave SW
Calgary, AB, Canada
T3C 0K1
Attn: Ashley Craig
Sampled By: Jessica Wyatt
Company: Vertex

Project ID: 19A-03726
Project Name:
Project Location:
LSD: 2702-50Ave
P.O.:
Proj. Acct. code:

Lot ID: **1384483**
Control Number:
Date Received: Oct 18, 2019
Date Reported: Oct 24, 2019
Report Number: 2453062

		Reference Number	1384483-2	1384483-4	1384483-6	
		Sample Date	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	MW19-01 / 1.0-1.2 / m	MW19-01 / 3.0-3.2 / m	MW19-01 / 4.3-4.5 / m	
		Matrix	Soil	Soil	Soil	
Analyte	Units	Results	Results	Results	Nominal Detection Limit	
Mono-Aromatic Hydrocarbons - Soil						
Benzene	Dry Weight	mg/kg	<0.005	<0.005	<0.005	0.005
Toluene	Dry Weight	mg/kg	<0.02	<0.02	<0.02	0.02
Ethylbenzene	Dry Weight	mg/kg	<0.005	<0.005	<0.005	0.005
Total Xylenes (m,p,o)	Dry Weight	mg/kg	<0.03	<0.03	<0.03	0.03
Volatile Petroleum Hydrocarbons - Soil						
Methanol Field Preservation			Yes	Yes	Yes	
F1 C6-C10	Dry Weight	mg/kg	<10	<10	<10	10
F1 -BTEX	Dry Weight	mg/kg	<10	<10	<10	10
Extractable Petroleum Hydrocarbons - Soil						
Extraction Date	Total Extractables		21-Oct-19	21-Oct-19	21-Oct-19	
F2c C10-C16	Dry Weight	mg/kg	<25	<25	<25	25
F3c C16-C34	Dry Weight	mg/kg	<50	68	134	50
F4c C34-C50	Dry Weight	mg/kg	<100	<100	<100	100
F4HTGCc C34-C50+	Dry Weight	mg/kg	<100	<100	185	100
% C50+	%		<5	16.0	21.9	
Silica Gel Cleanup						
Silica Gel Cleanup			Done	Done	Done	
Soil % Moisture						
Moisture	Soil % Moisture	% by weight	12.00	14.10	12.80	

Analytical Report

Bill To: Vertex Professional Services
200 - 1711 10th Ave SW
Calgary, AB, Canada
T3C 0K1
Attn: Ashley Craig
Sampled By: Jessica Wyatt
Company: Vertex

Project ID: 19A-03726
Project Name:
Project Location:
LSD: 2702-50Ave
P.O.:
Proj. Acct. code:

Lot ID: **1384483**
Control Number:
Date Received: Oct 18, 2019
Date Reported: Oct 24, 2019
Report Number: 2453062

Reference Number	1384483-2	1384483-4	1384483-9
Sample Date	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019
Sample Time	NA	NA	NA
Sample Location			
Sample Description	MW19-01 / 1.0-1.2 / m	MW19-01 / 3.0-3.2 / m	MW19-02 / 2.0-2.2 / m
Matrix	Soil	Soil	Soil

Analyte	Units	Results	Results	Results	Nominal Detection Limit
Particle Size Analysis - Wet Sieve					
Texture		Fine-Grained	Fine-Grained	Fine-Grained	
75 micron sieve	% Retained	% by weight	36.7	35.5	36.8
					0.1

Analytical Report

Bill To: Vertex Professional Services
200 - 1711 10th Ave SW
Calgary, AB, Canada
T3C 0K1
Attn: Ashley Craig
Sampled By: Jessica Wyatt
Company: Vertex

Project ID: 19A-03726
Project Name:
Project Location:
LSD: 2702-50Ave
P.O.:
Proj. Acct. code:

Lot ID: **1384483**
Control Number:
Date Received: Oct 18, 2019
Date Reported: Oct 24, 2019
Report Number: 2453062

		Reference Number	1384483-9	1384483-10	1384483-12	
		Sample Date	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	MW19-02 / 2.0-2.2 / m	MW19-02 / 3.0-3.2 / m	MW19-02 / 4.3-4.5 / m	
		Matrix	Soil	Soil	Soil	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mono-Aromatic Hydrocarbons - Soil						
Benzene	Dry Weight	mg/kg	<0.005	<0.005	<0.005	0.005
Toluene	Dry Weight	mg/kg	<0.02	<0.02	<0.02	0.02
Ethylbenzene	Dry Weight	mg/kg	<0.005	<0.005	<0.005	0.005
Total Xylenes (m,p,o)	Dry Weight	mg/kg	<0.03	<0.03	<0.03	0.03
Volatile Petroleum Hydrocarbons - Soil						
Methanol Field Preservation			Yes	Yes	Yes	
F1 C6-C10	Dry Weight	mg/kg	<10	<10	<10	10
F1 -BTX	Dry Weight	mg/kg	<10	<10	<10	10
Extractable Petroleum Hydrocarbons - Soil						
Extraction Date	Total Extractables		21-Oct-19	21-Oct-19	21-Oct-19	
F2c C10-C16	Dry Weight	mg/kg	<25	<25	<25	25
F3c C16-C34	Dry Weight	mg/kg	<50	<50	114	50
F4c C34-C50	Dry Weight	mg/kg	<100	<100	<100	100
F4HTGCc C34-C50+	Dry Weight	mg/kg	<100	<100	124	100
% C50+		%	<5	<5	17.8	
Silica Gel Cleanup						
Silica Gel Cleanup			Done	Done	Done	
Soil % Moisture						
Moisture	Soil % Moisture	% by weight	12.90	13.00	11.90	

Analytical Report

Bill To: Vertex Professional Services
200 - 1711 10th Ave SW
Calgary, AB, Canada
T3C 0K1
Attn: Ashley Craig
Sampled By: Jessica Wyatt
Company: Vertex

Project ID: 19A-03726
Project Name:
Project Location:
LSD: 2702-50Ave
P.O.:
Proj. Acct. code:

Lot ID: **1384483**
Control Number:
Date Received: Oct 18, 2019
Date Reported: Oct 24, 2019
Report Number: 2453062

Reference Number	1384483-10	1384483-12	1384483-14
Sample Date	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019
Sample Time	NA	NA	NA
Sample Location			
Sample Description	MW19-02 / 3.0-3.2 / m	MW19-02 / 4.3-4.5 / m	MW19-03 / 1.0-1.2 / m
Matrix	Soil	Soil	Soil

Analyte	Units	Results	Results	Results	Nominal Detection Limit
Particle Size Analysis - Wet Sieve					
Texture		Fine-Grained	Fine-Grained	Fine-Grained	
75 micron sieve	% Retained	% by weight	37.8	34.4	40.1
					0.1

Analytical Report

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200 - 1711 10th Ave SW
Calgary, AB, Canada
T3C 0K1
Attn: Ashley Craig
Sampled By: Jessica Wyatt
Company: Vertex

Project ID: 19A-03726
Project Name:
Project Location:
LSD: 2702-50Ave
P.O.:
Proj. Acct. code:

Lot ID: **1384483**
Control Number:
Date Received: Oct 18, 2019
Date Reported: Oct 24, 2019
Report Number: 2453062

		Reference Number	1384483-14	1384483-16	1384483-18	
		Sample Date	Oct 16, 2019	Oct 16, 2019	Oct 16, 2019	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	MW19-03 / 1.0-1.2 / m	MW19-03 / 3.0-3.2 / m	MW19-03 / 4.3-4.5 / m	
		Matrix	Soil	Soil	Soil	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Mono-Aromatic Hydrocarbons - Soil						
Benzene	Dry Weight	mg/kg	<0.005	<0.005	<0.005	0.005
Toluene	Dry Weight	mg/kg	<0.02	<0.02	<0.02	0.02
Ethylbenzene	Dry Weight	mg/kg	<0.005	<0.005	<0.005	0.005
Total Xylenes (m,p,o)	Dry Weight	mg/kg	<0.03	<0.03	<0.03	0.03
Volatile Petroleum Hydrocarbons - Soil						
Methanol Field Preservation			Yes	Yes	Yes	
F1 C6-C10	Dry Weight	mg/kg	<10	<10	<10	10
F1 -BTX	Dry Weight	mg/kg	<10	<10	<10	10
Extractable Petroleum Hydrocarbons - Soil						
Extraction Date	Total Extractables		21-Oct-19	21-Oct-19	21-Oct-19	
F2c C10-C16	Dry Weight	mg/kg	<25	<25	<25	25
F3c C16-C34	Dry Weight	mg/kg	<50	85	107	50
F4c C34-C50	Dry Weight	mg/kg	<100	101	<100	100
F4HTGCc C34-C50+	Dry Weight	mg/kg	<100	211	145	100
% C50+		%	<5	29.3	22.3	
Silica Gel Cleanup						
Silica Gel Cleanup			Done	Done	Done	
Soil % Moisture						
Moisture	Soil % Moisture	% by weight	11.40	12.30	12.50	

Analytical Report

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200 - 1711 10th Ave SW
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T3C 0K1
Attn: Ashley Craig
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Company: Vertex

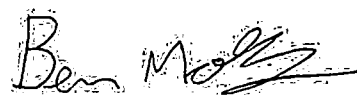
Project ID: 19A-03726
Project Name:
Project Location:
LSD: 2702-50Ave
P.O.:
Proj. Acct. code:

Lot ID: **1384483**
Control Number:
Date Received: Oct 18, 2019
Date Reported: Oct 24, 2019
Report Number: 2453062

Reference Number	1384483-16	1384483-18
Sample Date	Oct 16, 2019	Oct 16, 2019
Sample Time	NA	NA
Sample Location		
Sample Description	MW19-03 / 3.0-3.2 / m	MW19-03 / 4.3-4.5 / m
Matrix	Soil	Soil

Analyte	Units	Results	Results	Results	Nominal Detection Limit
Particle Size Analysis - Wet Sieve					
Texture		Coarse-Grained	Fine-Grained		
75 micron sieve	% Retained	% by weight	75.2	35.5	0.1

Approved by:



Benjamin Morris, B.Sc
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).

Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

Quality Control

Bill To: Vertex Professional Services
200 - 1711 10th Ave SW
Calgary, AB, Canada
T3C 0K1
Attn: Ashley Craig
Sampled By: Jessica Wyatt
Company: Vertex

Project ID: 19A-03726
Project Name:
Project Location:
LSD: 2702-50Ave
P.O.:
Proj. Acct. code:

Lot ID: **1384483**
Control Number:
Date Received: Oct 18, 2019
Date Reported: Oct 24, 2019
Report Number: 2453062

Extractable Petroleum Hydrocarbons - Soil

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
F2c C10-C16	µg/mL	0	-10	10	yes
F3c C16-C34	µg/mL	0	-30	30	yes
F4c C34-C50	µg/mL	0	-20	20	yes
F4HTGCc C34-C50+	µg/mL	0	-20	20	yes

Date Acquired: October 19, 2019

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
F2c C10-C16	µg/mL	98.64	80	120	yes
F3c C16-C34	µg/mL	100.31	80	120	yes
F4c C34-C50	µg/mL	82.63	80	120	yes
F4HTGCc C34-C50+	µg/mL	85.16	80	120	yes

Date Acquired: October 19, 2019

Client Sample Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
F2c C10-C16	mg/kg	<25	<25	50	10	yes
F3c C16-C34	mg/kg	107	103	50	10	yes
F4c C34-C50	mg/kg	<100	<100	50	10	yes
F4HTGCc C34-C50+	mg/kg	145	138	50	10	yes

Date Acquired: October 19, 2019

Matrix Spike	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
F2c C10-C16	mg/kg	82	70	130	yes
F3c C16-C34	mg/kg	95	70	130	yes
F4c C34-C50	mg/kg	101	70	130	yes
F4HTGCc C34-C50+	mg/kg	104	70	130	yes

Date Acquired: October 19, 2019

Mono-Aromatic Hydrocarbons - Soil

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Benzene	ng	0	-0.005	0.005	yes
Toluene	ng	0	-0.06	0.06	yes
Ethylbenzene	ng	0	-0.030	0.030	yes
Total Xylenes (m,p,o)	ng	0	-0.09	0.09	yes
Styrene	ng	0	-0.030	0.030	yes

Date Acquired: October 19, 2019

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Benzene	ng	118.60	80	120	yes
Toluene	ng	117.60	80	120	yes
Ethylbenzene	ng	108.40	80	120	yes
Total Xylenes (m,p,o)	ng	100.00	80	120	yes
Styrene	ng	92.80	80	120	yes

Date Acquired: October 19, 2019

Particle Size Analysis - Wet Sieve

Client Sample Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
75 micron sieve	% by weight	53.8	52.7	10	3.0	yes

Quality Control

Bill To: Vertex Professional Services 200 - 1711 10th Ave SW Calgary, AB, Canada T3C 0K1	Project ID: 19A-03726 Project Name: Project Location: LSD: 2702-50Ave P.O.: Proj. Acct. code:	Lot ID: 1384483 Control Number: Date Received: Oct 18, 2019 Date Reported: Oct 24, 2019 Report Number: 2453062
Attn: Ashley Craig Sampled By: Jessica Wyatt Company: Vertex		

Particle Size Analysis - Wet Sieve - Continued

Client Sample	Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Date Acquired:	October 19, 2019						
Control Sample		Units	Measured	Lower Limit	Upper Limit		Passed QC
75 micron sieve		% by weight	18.7	12.2	26.0		yes
Date Acquired:	October 19, 2019						
75 micron sieve		% by weight	30.6	24.6	33.4		yes
Date Acquired:	October 19, 2019						

Volatile Petroleum Hydrocarbons - Soil

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
F1 C6-C10	ng	0	-10	10	yes
Date Acquired:	October 19, 2019				
Matrix Spike	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
F1 C6-C10	mg/kg	89	80	120	yes
Date Acquired:	October 19, 2019				

Methodology and Notes

Bill To: Vertex Professional Services 200 - 1711 10th Ave SW Calgary, AB, Canada T3C 0K1	Project ID: 19A-03726 Project Name: Project Location: LSD: 2702-50Ave P.O.: Proj. Acct. code:	Lot ID: 1384483 Control Number: Date Received: Oct 18, 2019 Date Reported: Oct 24, 2019 Report Number: 2453062
Attn: Ashley Craig Sampled By: Jessica Wyatt Company: Vertex		

Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
BTEX-CCME - Soil	CCME	* Reference Method for Canada-Wide Standard for PHC in Soil, CWS PHCS TIER 1	Oct 19, 2019	Element Calgary
BTEX-CCME - Soil	US EPA	* Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis/Gas Chromatography Mass Spectrometry, 5021/8260	Oct 19, 2019	Element Calgary
Particle Size by Wet Sieve	ASTM	* Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing, C 117-17	Oct 19, 2019	Element Edmonton - Roper Road
Particle Size by Wet Sieve	Carter	* Procedure for Particle Size Separation, 55.2.3	Oct 19, 2019	Element Edmonton - Roper Road
TEH-CCME-Soil (Shake)	CCME	* Reference Method for Canada-Wide Standard for PHC in Soil, CWS PHCS TIER 1	Oct 19, 2019	Element Calgary

** Reference Method Modified*

References

ASTM	Annual Book of ASTM Standards
Carter	Soil Sampling and Methods of Analysis.
CCME	Canadian Council of Ministers of the Environment
US EPA	US Environmental Protection Agency Test Methods

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.



Project Information

Project ID: 19A-03726
Project Name:
Project Location:
Legal Location: 2702-50Ave
PO/AFE#:
Proj. Acct. Code:
Quote #:

Invoice To
Company: 1465770 Alberta Ltd
Address: 2702 50 Ave
Attention:
Phone:
Cell:
Fax:
E-mail: shahidmughal.26@gmail.com
Agreement ID:
Copy of Report: YES / NO

Report To
Company: Vertex Professional Services
Address:
Attention: Ashley Craig
Phone: 587 988 6857
Cell:
Fax: acraig@vertex.ca
E-mail 1:
E-mail 2:
Copy of Invoice: YES / NO

Additional Reports to
1) Name:
E-mail:
2) Name:
E-mail:

Sample Custody
Sampled by Jessica Wyatt
Company: Vertex Professional Services
I authorize Element to proceed with the work indicated on this form:
Signature: *J. Wyatt*
Date/Time: Oct 17/19 17:00

RUSH Priority

Report Results

Requirements

- ☐ Same Day (200%)
☐ Next Day/Two Day (100%)
☐ Three or Four Days (50%)
☒ 5 to 7 Days (Regular TAT)

When "ASAP" is requested, turn around will default to a 100% RUSH priority, with pricing and turn around time to match. Please contact the lab prior to submitting RUSH samples. If not all samples require RUSH, please indicate in the special instructions.

- ☒ Email ☐ QA/QC
☐ Online ☒ PDF
☐ Fax ☒ Excel

- ☐ HCDWORG ☐ SPIGEC
☒ AB Tier 1 ☐ BCCSR
Other (list below)

Date Required

Special Instructions/Comments (please include contact information including phone number if different from above).

	Site I.D.	Sample Description	Depth start end in cm m	Date/Time sampled	Matrix	Sampling method	#	✓	Enter tests above (✓ relevant samples below)											
1		MW19-01 (0.4 - 0.6 m)		10/16/2019	Soil		3	X												
2		MW19-01 (1.0 - 1.2 m)		10/16/2019	Soil		4	X	X	X										
3		MW19-01 (2.0 - 2.2 m)		10/16/2019	Soil		3	X												
4		MW19-01 (3.0 - 3.2 m)		10/16/2019	Soil		4	X	X	X										
5		MW19-01 (4.0 - 4.2 m)		10/16/2019	Soil		3	X												
6		MW19-01 (4.3 - 4.5 m)		10/16/2019	Soil		4	X	X	X										
7		MW19-02 (0.4 - 0.6 m)		10/16/2019	Soil		3	X												
8		MW19-02 (1.0 - 1.2 m)		10/16/2019	Soil		3	X												
9		MW19-02 (2.0 - 2.2 m)		10/16/2019	Soil		4	X	X	X										
10		MW19-02 (3.0 - 3.2 m)		10/16/2019	Soil		4	X	X	X										
11		MW19-02 (4.0 - 4.2 m)		10/16/2019	Soil		3	X												
12		MW19-02 (4.3 - 4.5 m)		10/16/2019	Soil		4	X	X	X										
13		MW19-03 (0.4 - 0.6 m)		10/16/2019	Soil		3	X												
14		MW19-03 (1.0 - 1.2 m)		10/16/2019	Soil		4	X	X	X										
15		MW19-03 (2.0 - 2.2 m)		10/16/2019	Soil		3	X												

Please indicate any potentially hazardous samples

Submission of this form acknowledges acceptance of Element's Standard of terms and conditions (<https://www.element.com/terms/terms-and-conditions>)

Page 1 of 2

ED 120-005

Control #

Indicate lot # or affix barcode here

Lot: 1384483



Temp. received: 1.7 °C

Date/Time stamp:

Delivery Method:

Waybill:

Received by: *John W*

Special Instructions/Comments (please include contact information including ph. # if different from above).

[illegible]

Please indicate any potentially hazardous samples

Page 2 of 2

Control #



Report Transmission Cover Page

Bill To: Vertex Professional Services 200 - 1711 10th Ave SW Calgary, AB, Canada T3C 0K1	Project ID: 19A-03726 Project Name: Husky Gas Station Project Location: 2702-50 Ave, Lloydminster	Lot ID: 1390139 Control Number: Date Received: Nov 8, 2019 Date Reported: Nov 9, 2019 Report Number: 2463494
Attn: Ashley Craig Sampled By: Company:	LSD: P.O.: Proj. Acct. code:	

Contact	Company	Address
Accounts Payable	Vertex Professional Services	#121, 2055 Premier Way Sherwood Park, AB T8H 0G2 Phone: (403) 229-3969 Fax: (780) 464-3731 Email: ap@vertex.ca

Delivery	Format	Deliverables
Email - Single Report	PDF	Invoice
Ashley Craig	Vertex Professional Services	200 - 1711 10th Ave SW Calgary, AB T3C 0K1 Phone: (000) 000-0000 Fax: (403) 244-1202 Email: acraig@vertex.ca

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / COA
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	Invoice
Email - Single Report	Vertex Custom Excel	Test Report
Nathan Buczyk	Vertex Professional Services	#121, 2055 Premier Way Sherwood Park, AB T8H 0G2 Phone: (780) 464-3295 Fax: (780) 464-3731 Email: nbuczyk@vertex.ca

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / COA
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	Vertex Custom Excel	Test Report

Notes To Clients:

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If you receive this transmission by error, or if this transmission is not satisfactory, please notify us by telephone.

Analytical Report

Bill To: Vertex Professional Services
 200 - 1711 10th Ave SW
 Calgary, AB, Canada
 T3C 0K1
 Attn: Ashley Craig
 Sampled By:
 Company:

Project ID: 19A-03726
 Project Name: Husky Gas Station
 Project Location: 2702-50 Ave,
 Lloydminster
 LSD:
 P.O.:
 Proj. Acct. code:

Lot ID: **1390139**
 Control Number:
 Date Received: Nov 8, 2019
 Date Reported: Nov 9, 2019
 Report Number: 2463494

	Reference Number	1390139-1	1390139-2	1390139-3	
	Sample Date	Nov 07, 2019	Nov 07, 2019	Nov 07, 2019	
	Sample Time	NA	NA	NA	
	Sample Location				
	Sample Description	MW19-01 / 4.2 °C	MW19-02 / 4.2 °C	MW19-03 / 4.2 °C	
	Matrix	Water	Water	Water	
Analyte	Units	Results	Results	Results	Nominal Detection Limit
Mono-Aromatic Hydrocarbons - Water					
Benzene	mg/L	<0.001	<0.001	<0.001	0.001
Toluene	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	0.0010
Total Xylenes (m,p,o)	mg/L	<0.001	<0.001	<0.001	0.001
Volatile Petroleum Hydrocarbons - Water					
F1 -BTEX	mg/L	<0.1	<0.1	<0.1	0.1
F1 C6-C10	mg/L	<0.1	<0.1	<0.1	0.1
Extractable Petroleum Hydrocarbons - Water					
F2 C10-C16	mg/L	<0.1	<0.1	<0.1	0.1
F3 C16-C34	mg/L	<0.1	<0.1	0.4	0.1
F4 C34-C50	mg/L	<0.1	<0.1	0.6	0.1
F4HTGC C34-C50+	mg/L	<0.1	<0.1	0.8	0.1

Analytical Report

Bill To: Vertex Professional Services
200 - 1711 10th Ave SW
Calgary, AB, Canada
T3C 0K1
Attn: Ashley Craig
Sampled By:
Company:

Project ID: 19A-03726
Project Name: Husky Gas Station
Project Location: 2702-50 Ave,
Lloydminster
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1390139**
Control Number:
Date Received: Nov 8, 2019
Date Reported: Nov 9, 2019
Report Number: 2463494

Reference Number 1390139-4
Sample Date Nov 07, 2019
Sample Time NA
Sample Location
Sample Description MW19-04 / 4.2 °C

Matrix Water

Analyte	Units	Results	Results	Results	Nominal Detection Limit
Mono-Aromatic Hydrocarbons - Water					
Benzene	mg/L	<0.001			0.001
Toluene	mg/L	<0.0004			0.0004
Ethylbenzene	mg/L	<0.0010			0.0010
Total Xylenes (m,p,o)	mg/L	<0.001			0.001
Volatile Petroleum Hydrocarbons - Water					
F1 -BTEX	mg/L	<0.1			0.1
F1 C6-C10	mg/L	<0.1			0.1
Extractable Petroleum Hydrocarbons - Water					
F2 C10-C16	mg/L	<0.1			0.1
F3 C16-C34	mg/L	<0.1			0.1
F4 C34-C50	mg/L	<0.1			0.1
F4HTGC C34-C50+	mg/L	<0.1			0.1

Approved by:



Jimmy Tran
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).

Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

Quality Control

Bill To: Vertex Professional Services 200 - 1711 10th Ave SW Calgary, AB, Canada T3C 0K1 Attn: Ashley Craig Sampled By: Company:	Project ID: 19A-03726 Project Name: Husky Gas Station Project Location: 2702-50 Ave, Lloydminster LSD: P.O.: Proj. Acct. code:	Lot ID: 1390139 Control Number: Date Received: Nov 8, 2019 Date Reported: Nov 9, 2019 Report Number: 2463494
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Extractable Petroleum Hydrocarbons - Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
F2 C10-C16	µg/mL	0	-0.2	0.2	yes
F3 C16-C34	µg/mL	0	-0.2	0.2	yes
F3+ C34+	µg/mL	0	-0.2	0.2	yes
F4 C34-C50	µg/mL	0	-0.2	0.2	yes
F4HTGC C34-C50+	µg/mL	0	-0.2	0.2	yes

Date Acquired: November 08, 2019

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
F2 C10-C16	µg/mL	96.57	80	120	yes
F3 C16-C34	µg/mL	101.27	80	120	yes
F3+ C34+	µg/mL	115.04	80	120	yes
F4 C34-C50	µg/mL	80.00	80	120	yes
F4HTGC C34-C50+	µg/mL	115.04	80	120	yes

Date Acquired: November 08, 2019

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
F2 C10-C16	mg/L	105	98.1	15	0.2	yes
F3 C16-C34	mg/L	109	101	15	0.2	yes
F3+ C34+	mg/L	108	100	15	0.2	yes
F4 C34-C50	mg/L	110	102	15	0.2	yes
F4HTGC C34-C50+	mg/L	108	100	15	0.2	yes

Date Acquired: November 08, 2019

Matrix Spike	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
F2 C10-C16	mg/L	105	70	130	yes
F3 C16-C34	mg/L	109	70	130	yes
F3+ C34+	mg/L	108	70	130	yes
F4 C34-C50	mg/L	110	70	130	yes
F4HTGC C34-C50+	mg/L	108	70	130	yes

Date Acquired: November 08, 2019

Mono-Aromatic Hydrocarbons - Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Benzene	ng	0	-0.002	0.002	yes
Toluene	ng	0	-0.0015	0.0015	yes
Ethylbenzene	ng	0	-0.0015	0.0015	yes
Total Xylenes (m,p,o)	ng	0	-0.002	0.002	yes

Date Acquired: November 09, 2019

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Benzene	ng	115.20	80	120	yes
Toluene	ng	106.40	80	120	yes
Ethylbenzene	ng	82.40	80	120	yes
Total Xylenes (m,p,o)	ng	83.33	80	120	yes

Date Acquired: November 09, 2019

Quality Control

Bill To: Vertex Professional Services	Project ID: 19A-03726	Lot ID: 1390139
200 - 1711 10th Ave SW	Project Name: Husky Gas Station	Control Number:
Calgary, AB, Canada	Project Location: 2702-50 Ave,	Date Received: Nov 8, 2019
T3C 0K1	Lloydminster	Date Reported: Nov 9, 2019
Attn: Ashley Craig	LSD:	Report Number: 2463494
Sampled By:	P.O.:	
Company:	Proj. Acct. code:	

Volatile Petroleum Hydrocarbons - Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
F1 -BTEX	ng	0	-0.3	0.3	yes
F1 C6-C10	ng	0	-0.300	0.300	yes
F2 C10-C16	ng	0	-0.3	0.3	yes
Date Acquired: November 09, 2019					
Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
F2 C10-C16	ng	99.20	80	120	yes
Date Acquired: November 09, 2019					

Methodology and Notes

Bill To: Vertex Professional Services 200 - 1711 10th Ave SW Calgary, AB, Canada T3C 0K1	Project ID: 19A-03726 Project Name: Husky Gas Station Project Location: 2702-50 Ave, Lloydminster	Lot ID: 1390139 Control Number: Date Received: Nov 8, 2019 Date Reported: Nov 9, 2019 Report Number: 2463494
Attn: Ashley Craig Sampled By: Company:	LSD: P.O.: Proj. Acct. code:	

Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
BTEX-CCME - Water	US EPA	* Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis/Gas Chromatography Mass Spectrometry, 5021/8260	Nov 9, 2019	Element Calgary
TEH-CCME - Water	EPA/CCME	* Separatory Funnel Liquid-liquid Extraction/CCME, EPA 3510/CCME <i>* Reference Method Modified</i>	Nov 8, 2019	Element Calgary

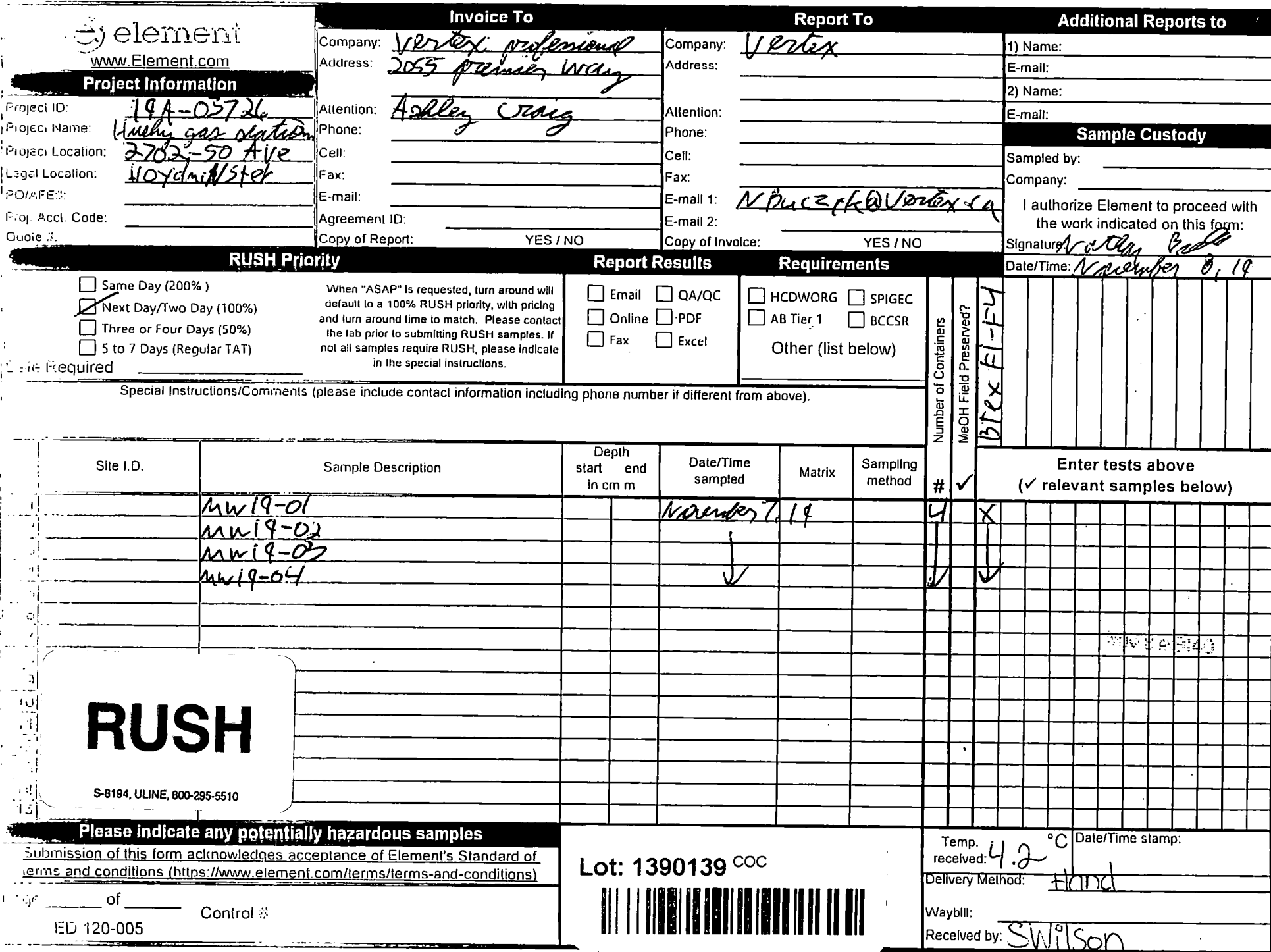
References

EPA/CCME	Environmental Protection Agency Test Methods - US/CCME
US EPA	US Environmental Protection Agency Test Methods

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.



APPENDIX F

Professional Declaration for Reclamation Certificate Applications

Submit one Declaration for each report

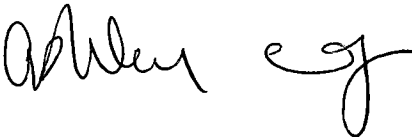
- 1 This Declaration is made in conjunction with an application for a reclamation certificate (the "Application") made by
1465770 Alberta Ltd. (Applicant)
for the following land(s): Plan 112 4353, Block 46, Lot 56 (insert legal description).
- 2 I am a practicing professional member [Registration/member number] 1921
of the Alberta Society of Professional Biologist
which is a regulated professional organization (the "Professional Organization"). I have a minimum of five years verifiable experience in remediation or reclamation relevant to the Competencies Table contained in the Competencies for Remediation and Reclamation Advisory Committee's Recommendations Report (ESRD 2006).
- 3 As a member of the Professional Organization, I have the ability to sign off on work required for reclamation certificate applications as defined by the Alberta Energy Regulator and am authorized by the Applicant to prepare and submit the attached report or document, (the "Professional Report") listed below.
- 4 To the best of my knowledge and the best of my professional ability, recognizing the standard of care expected of a reasonable professional doing this work, it is my professional opinion that all the information contained in the Professional Report is accurate and complete, and contains all the relevant information for the purposes of this Application.
- 5 The results reported in the Professional Report are consistent with all current and applicable Provincial policy, criteria, standards and guidelines for the remediation or reclamation.
- 6 The Professional Report, including all attachments, data and supplemental information, were prepared by me, or under my direct supervision, or was prepared by a third party(ies) and has been reviewed and accepted by me; and was prepared in accordance with an appropriate quality assurance/quality control system that ensured qualified personnel properly gathered and evaluated all the information contained in and underlying the Professional Reports. All the information submitted is, to the best of my knowledge, true, accurate and complete.
- 7 I carry, or my employer: Vertex Professional Services Ltd.
(insert legal name of employer)
carries professional liability insurance (errors and omissions). This insurance will be maintained for the specified liability period, subject to insurance availability.

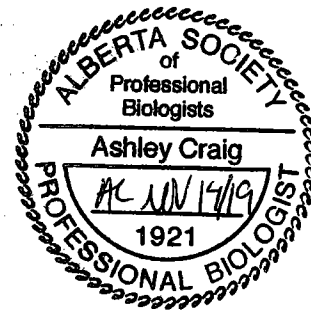
- 8 I am aware that it is an offence under section 227 of the Environmental Protection and Enhancement Act to provide false, misleading or inaccurate information and that there are significant fines for committing these offences, including the possibility of imprisonment. See below for the relevant sections.

Report Title: 2019 Phase 2 Environmental Site Assessment
Plan 112 4353, Block 46, Lot 56

Date: November 14, 2019

Name: Ashley Craig

Signature: 



Note: If you wish to sign the form with an electronic signature you are bound with the same force as though you had a fixed signature on paper.

Registration/Member number: 1921

Section 227 of the Environmental Protection and Enhancement Act

Offences s. 227 A person who

- (a) knowingly provides false or misleading information pursuant to a requirement under this Act to provide information,
- (b) provides false or misleading information pursuant to a requirement under this Act to provide information

is guilty of an offence.

Penalties s. 228(1) A person who commits an offence referred to in section 60, 87, 108(1), 109(1) or 227(a), (d), (f) or (h) is liable to

- (a) in the case of an individual, to a fine or not more than \$100 000 or to imprisonment for a period of not more than 2 years or to both fine and imprisonment, or

- (b) in the case of a corporation, to a fine of not more than \$1 000 000.

(2) A person who commits an offence referred to in section 61, 67, 75, 76, 79, 88, 108(2), 109(2) 110(1) or (2), 111, 112, 137, 148, 149, 155, 157, 163, 169, 170, 173, 176, 188, 191, 192, 209, 227(b), (c), (e), (g), or (i) or 251 is liable.

- (a) in the case of an individual, to a fine or not more than \$50 000, or

- (b) in the case of a corporation, to a fine of not more than \$500 000.

APPENDIX G

Record of Site Condition



1 REPORT AND FORM INFORMATION			
Title of report	2019 Phase 2 Environmental Site Assessment Plan 112 4353, Block 46, Lot 56		
Report date (dd-mon-yyyy)	November 14, 2019	Record of Site Condition (RSC) ID No. ^ψ	

2 SITE IDENTIFICATION AND PHYSICAL LOCATION								
2.1 Site name		Plan 112 4353, Block 46, Lot 56						
2.2 Address of site		2702 - 50 th Avenue						
		Municipality	Lloydminster					Alberta
2.3 Legal land description of site (if multiple, list all.)								
Plan, Block, Lot (PBL)			Alberta Township System (ATS)					
Plan	Block	Lot	LSD	Quarter	Section	Township	Range	Meridian
112 4353	46	56						

3 STAKEHOLDERS			
3.1 Operator			
Company	1465770 Alberta Ltd.	Contact person	Shahid Mughal
Mailing address	2702 - 50 th Avenue Lloydminster, Alberta T9V 2S3	Position held	Owner
		Business phone No.	780.872.3521
		Business fax No.	
		Business e-mail	shahidmughal.26@gmail.com
3.2 Consultant ☐ Not applicable			
Company	Vertex Professional Services Ltd.	Contact person	Ashley Craig
Mailing address	161, 2055 Premier Way Sherwood Park, Alberta T8H 0G2	Position held	Manager
		Business phone No.	780.464.3295 Ext. 1118
		Business fax No.	780.464.3731
		Business e-mail	acraig@vertex.ca
3.3 Landowner(s)			
Land type	☒ Private ☐ Special Areas ☐ Parks and protected area ☐ Public (if not private, provide Disposition No.: _____)		
Landowner(s)	☒ Same as operator ☐ Other		

^ψ: Do not fill in. Reserved for internal administrative purposes only.

Record of Site Condition



3.4 Occupant(s)			
Are there occupants at the site?	☒ Yes	☐ No	☐ To be determined (TBD)
Occupant(s)	☒ Same as operator	☐ Same as landowner	☐ Other
What is the type of occupancy?	☐ Apartment building	☐ Town house	☐ Single detached house
	☐ Agricultural	☐ Industrial	☒ Commercial
	☐ Other (specify) _____		

4 OPERATING STATUS	
☒ Operating ☐ Suspended ☐ Abandoned ☐ Decommissioning in progress ☐ Closed ☐ Reclaimed (provide Reclamation Certificate No.(s): _____) ☐ Not applicable	

5 TYPE OF ACTIVITY AND SITE					
5.1 Petroleum Storage Tank Site					☐ Yes
5.1.1 ESRD file No.(s)				PTMAA site No.	
5.1.2 Types of activity					
☐ Retail gas station	☐ Aviation fuelling station	☐ Bulk fuel	☐ Other (specify): _____		
5.2 Upstream Oil and Gas Facility					☐ Yes
5.2.1 ESRD file No.(s)				AER approval No.(s)	
5.2.2 AER authorization type					
☐ Approval ☐ License ☐ Permit ☐ Order ☐ Other (specify) _____					
5.2.3 Types of activity					
☐ Wellsite and associated facility	☐ Satellite	☐ Battery	☐ Pipeline		
☐ Compressor and pumping station	☐ Other (specify): _____				
5.3 Approved Facility Under Environmental Protection and Enhancement Act (EPEA)					☐ Yes
5.3.1 ESRD approval No.(s)				AER approval No.(s)	
5.3.2 Types of approved activity					
☐ Chemical manufacturing plant	☐ Enhanced recovery in-situ oil sands or heavy oil processing plant	☐ Fertilizer manufacturing plant	☐ Landfill		
☐ Metal manufacturing plant	☐ Oil refinery	☐ Oilsands processing plant	☐ Oil production site		
☐ Pesticide manufacturing plant	☐ Petrochemical manufacturing plant	☐ Pipeline	☐ Power plant		
☐ Pulp and paper processing plant	☐ Sour gas processing plant	☐ Sulphur manufacturing or processing plant	☐ Waste management facility		
☐ Wood treatment plant	☐ Other (specify): _____				

Record of Site Condition



5.4 Facility Under EPEA Code of Practice				☒ Yes	
5.4.1 ESRD registration No.(s)				AER registration No.(s)	
5.4.2 Type of Code of Practice					
☐	Asphalt paving plant	☐	Compressor and pumping station	☐	Concrete producing plant
☐	Pesticides	☐	Pipeline	☐	Land treatment of soils containing hydrocarbons
☐	Small incinerator	☐	Sweet gas processing plant	☐	Other (<i>specify</i>): _____
5.5 Other Activity					
☐ Yes					
5.5.1 ESRD file No.(s)				Other site ID No.(s)	
				Authorized by	
5.5.2 Types of activity					
☐	Dry cleaning operation	☐	Highway maintenance yard	☐	Transportation
☐	Other (<i>specify</i>): _____				

6 SITE CHARACTERIZATION					
6.1 What Environmental Site Assessments (ESA) Have Been Conducted and Completed to Date?					
☐ Phase I ESA ☒ Phase II ESA (<i>check all that apply.</i>) ☐ Initial intrusive sampling ☐ delineation completed ☐ post-remediation monitoring ☐ final confirmatory sampling					
6.2 Contaminants of Potential Concern (COPC)					
6.2.1 Does the site have any of the conditions that require the mandatory use of <i>Alberta Tier 2 Soil and Groundwater Remediation Guidelines</i> (ESRD, 2007 and updates)? (<i>check all that apply in Section 6.2.1.1.</i>)					
☐ Yes ☒ No (→ <i>proceed to Section 6.2.2.</i>)					
6.2.1.1 Identify any conditions that require the approaches of the <i>Alberta Tier 2 guidelines</i>. (<i>see Alberta Tier 1 Soil and Groundwater Remediation Guidelines</i> (ESRD, 2007 and updates), for details.)					
☐	Contamination within 30 cm of building foundation	☐	Unusual building feature (<i>eg. earthen floor</i>)	☐	Contamination within 10 m distance of surface water body
☐	Fractured bedrock	☐	Potentially high hydraulic conductivity ($> 10^{-5}$ m/sec.)	☐	Other (<i>see Alberta Tier 1 guidelines and specify</i>): _____
6.2.1.2 Did the <i>Alberta Tier 2</i> approach lead to a soil or groundwater guideline that was lower than the corresponding Tier 1 guideline for the same contaminant(s)?					
☐ Yes ☐ TBD ☒ No (→ <i>proceed to Section 6.2.2.</i>)					
6.2.1.3 If you answered 'yes' or 'TBD' to Section 6.2.1.2, identify the group of contaminants for each COPC with a mandatory Tier 2 guideline that is lower than the corresponding Tier 1 guideline (<i>check all that apply, see Alberta Tier 1 guidelines, Tables 1-4 for detailed listing</i>).					
☐	General and inorganic parameters	☐	Metals		
☐	Hydrocarbons	☐	Halogenated aliphatics		
☐	Chlorinated aromatics	☐	Pesticides		
☐	Other organics	☐	Radionuclides		
☐	Salt	☐	Other (<i>specify</i>): _____		

Record of Site Condition



6.2.1.4 Did any past or current ESA relevant to this investigation identify an exceedance of the mandatory Tier 2 guidelines referred to in Section 6.2.1.3 (e.g. Tier 2 guidelines that are lower than the corresponding Tier 1 guidelines)? ☐ Yes ☐ No ☐ TBD	
6.2.1.5 If you answered 'yes' in Section 6.2.1.4, have all relevant COPC been remediated to meet the mandatory Tier 2 guidelines? ☐ Yes ☐ No	
6.2.2. Did any past or current ESA relevant to this investigation identify a drilling waste disposal area? ☐ Yes ☒ No (→proceed to Section 6.2.3.)	
6.2.2.1 If a drilling waste disposal area was identified, did any past or current ESA identify non-compliance with the compliance options outlined in <i>Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification</i> (AER, 2014), as amended? ☐ Yes ☐ No	
6.2.2.2 If you answered 'yes' in Section 6.2.2.1, have all COPC been remediated to meet the compliance options outlined in <i>Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification</i> (AER, 2014), as amended? ☐ Yes ☐ No	
6.2.2.3 For any COPC that did not meet the compliance options in <i>Assessing Drilling Waste Disposal Areas</i>, identify the group of contaminants (check of all that apply, see the Alberta Tier 1 guidelines, Tables 1-4 for detailed listing).	
☐ General and inorganic parameters	☐ Metals
☐ Hydrocarbons	☐ Halogenated aliphatics
☐ Chlorinated aromatics	☐ Pesticides
☐ Other organics	☐ Radionuclides
☐ Salt	☐ Other (specify): _____
6.2.3 For all areas and COPCs not assessed under Sections 6.2.1 or 6.2.2, did any ESA relevant to this investigation identify an exceedance over the Alberta Tier 1 guidelines? ☐ Yes ☒ No (→proceed to Section 6.3.)	
6.2.3.1 If you answered 'yes' in Section 6.2.3, have all COPC been remediated to meet the Alberta Tier 1 guidelines? ☐ Yes ☐ No ☐ TBD	
6.2.3.2 For any COPC that exceeded Alberta Tier 1 guidelines in Section 6.2.3.1, identify the group of contaminants. (check all that apply, see the Alberta Tier 1 guidelines, Tables 1-4 for detailed listing.)	
☐ General and inorganic parameters	☐ Metals
☐ Hydrocarbons	☐ Halogenated aliphatics
☐ Chlorinated aromatics	☐ Pesticides
☐ Other organics	☐ Radionuclides
☐ Salt	☐ Other (specify): _____

Record of Site Condition



6.3 Status of Investigation

6.3.1 Identify soil and groundwater guidelines used to assess the COPCs that are the subject of this investigation (check all that apply).

- ☒ Alberta Tier 1 Soil and Groundwater Remediation Guidelines – 2007 and updates,
☒ Coarse grained ☒ Fine grained
☐ Alberta Tier 2 Soil and Groundwater Remediation Guidelines – 2007 and updates,
☐ Pathway exclusion ☐ Guideline adjustment ☐ Site specific remediation objectives
☐ Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification
 (AER, 2014), as amended
☐ Other (specify): _____

6.3.2 What land use classification(s) is used?

- ☐ Natural ☐ Agricultural ☐ Residential ☒ Commercial ☐ Industrial ☐ Other (specify: _____)

6.3.3 What is the outcome of the investigation? (check one only.)

- ☒ For all COPCs on-site and off-site, no exceedance has been found above any applicable soil and groundwater guidelines in any prior and current assessments.
☐ All contamination on-site and off-site has been completely remediated and meets the applicable soil and groundwater guidelines.
☐ One or more COPC still exceeds the applicable soil or groundwater guidelines.

6.3.4 How many contaminated areas are there currently at the site?

- _____ ☒ None ☐ TBD

6.3.5 Are all contaminated areas and potential contaminated areas assessed during this investigation?

- ☐ Yes ☒ No

6.3.6 For all areas of potential environmental concern, list the dates when the contamination was discovered (specify dd-mon-yyyy): _____; _____

6.3.7 For all areas that have been identified in Section 6.3.4, have all substance releases been reported to ESRD?

- ☐ Yes ☐ No ☒ Not applicable

6.3.8 If the answer to Section 6.3.7 is 'yes', list all Incident No.(s) (attach separate sheet if necessary): _____; _____

- ☐ Not assigned

6.3.9 What is the approximate, cumulative amount of land area remaining exceeding applicable remediation guidelines? _____ (m²) ☒ None ☐ TBD

6.3.10 Is there non-aqueous phase liquid (NAPL) product remaining on site? ☐ Yes ☒ No ☐ TBD

6.3.11 Is there non-aqueous phase liquid (NAPL) product remaining off site? ☐ Yes ☒ No ☐ TBD

6.3.12 What is the remediation status of the contaminated areas at site?

- | | |
|---|--|
| ☒ No remediation required | ☐ Site has exceedance but no remediation plan |
| ☐ Remediation plan developed | ☐ Active remediation |
| ☐ Remediation completed | ☐ Post remediation assessment completed |
| ☐ Ongoing risk management plan – on-site | ☐ Ongoing risk management plan – off-site |
| ☐ Remediation Certificate issued for some area(s) (provide Remediation Certificate No.(s): _____) | |
| ☐ Remediation Certificate cancelled for some area(s) (provide Remediation Certificate No.(s): _____) | |

Direction for Completing the Remainder of the Form

Attach the analytical summary tables of the COPCs that are the subject of this investigation and still present at this site. A detailed listing of COPCs can be found with Tables 1-4 in *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* (ESRD, 2007 and updates), as amended. Refer to the *RSC User's Guide* for detailed information on format and other requirements regarding the summary table.

For the remainder of the form, follow the directions below:

- If the COPCs on-site and off-site have never exceeded any applicable soil and groundwater guidelines in any prior and current assessments, → proceed to Section 8, or
- If the COPCs on-site and off-site have been completely remediated and meet the applicable soil and groundwater guidelines, → proceed to Section 8, or
- For all other circumstances, continue with Section 6.4.

6.4 Key Transport Factors for Existing COPCs

6.4.1 What is the horizontal distance to the nearest water well from the edge of the nearest contaminated area?

☐ 0-50 m ☐ 50-100 m ☐ 100-300 m ☐ 300-1000 m ☐ > 1000 m

6.4.2 What is the horizontal distance to the nearest surface water body from the edge of the contaminated area?

☐ ≤10 m ☐ 10-50 m ☐ 50-100 m ☐ 100-300 m ☐ 300-1000 m ☐ > 1000 m

6.4.3 Does delineation achieve closure above the groundwater water table that is nearest to the ground surface?

☐ Yes (→ go to Section 6.5.) ☐ No ☐ TBD

6.4.4 Is the groundwater that is nearest the ground surface a domestic use aquifer (DUA) as defined in Alberta Tier 2 guidelines?

☐ Yes ☐ No ☐ TBD ☐ Not required (NR)

6.4.5 Is there a hydraulic barrier, as defined in Alberta Tier 2 guidelines, between the base of the contaminated area and the DUA?

☐ Yes ☐ No ☐ TBD ☐ NR

6.4.6 If you answered 'yes' to Section 6.4.5, provide the measured largest value of the hydraulic conductivity (as value $\times 10^{-7}$ m/sec.) for the 5.0 m vertical layer from the bottom of the contaminated zone.

_____ ($\times 10^{-7}$ m/sec.) ☐ TBD ☐ NR

6.5 On-site Characterization

6.5.1 What is the dominant soil texture that governs substance transport at the site?

☐ Coarse grained ☐ Fine grained ☐ TBD ☐ Not applicable (*must identify reason in Section 6.2.1.1.*)

6.5.2 What are the shallowest and deepest measured depths (meters below ground surface) of the water table at site?

Shallowest: _____ (m) Deepest: _____ (m) ☐ TBD ☐ NR (*specify max. depth assessed: _____ (m)*)

6.5.3 What is the dominant horizontal direction of groundwater flow for the near surface water table?

(N, NW, etc.: _____) ☐ TBD ☐ NR

6.5.4 What is the existing land use classification?

☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (*specify*) _____

6.5.5 What is the end land use classification?

☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (*specify*) _____

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6.5.6 Identify exposure pathways for which the applicable guidelines are exceeded on-site (check all that apply).			
☐	Vapour inhalation	☐	Soil ingestion
☐	Ingestion of potable water	☐	Soil dermal (skin) contact
☐	Fresh water aquatic life	☐	Soil contact for plants and invertebrates
☐	TBD	☐	Other (specify): _____

6.6 Off-site Characterization			
6.6.1 Are there COPCs off-site exceeding applicable soil or groundwater guidelines?			
☒ No (→ if on-site contamination was reported, proceed to Section 7, otherwise, proceed to Section 8.) ☐ Yes ☐ TBD			
6.6.2 What is the current land use classification for any off-site area(s) identified in Section 6.6.1?			
☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify) _____			
6.6.3 What is the end land use classification for any off-site area(s) identified in Section 6.6.1?			
☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify) _____			
6.6.4 Is there any substance concentration under a road allowance exceeding the applicable soil or groundwater guidelines?			
☐ Yes ☐ No (→ proceed to Section 6.6.6.) ☐ TBD			
6.6.5 What is the most sensitive land use classification adjacent to the road allowance?			
☐ Natural ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial ☐ Other (specify) _____			
6.6.6 Identify exposure pathways for which the applicable guidelines are exceeded off-site (check all that apply).			
☐	Vapour inhalation	☐	Soil ingestion
☐	Ingestion of potable water	☐	Soil dermal (skin) contact
☐	Fresh water aquatic life	☐	Soil contact for plants and invertebrates
☐	TBD	☐	Other (specify): _____

7 RISK MANAGEMENT PLAN (RMP)

7.1 What is the Plan for Contaminated Areas Still Remaining on and off the Site? (check one only.)

- ☐ Complete remediation (→ proceed to Section 8).
- ☐ Partial remediation with risk management for some residual contamination.
- ☐ Risk management for all remaining contamination.

7.2 Key Progress of RMP

7.2.1 If the site needs an on-going RMP, answer all the following questions that apply to the RMP.

☐ Yes	☐ No	Are contaminated areas completely delineated horizontally and vertically in soil?
☐ Yes	☐ No	Are contaminated areas completely delineated horizontally and vertically in groundwater?
☐ Yes	☐ No	Is source identified and completely delineated?
☐ Yes	☐ No	Is source migrating or has migrated off-site?
☐ Yes	☐ No	Is source left as is?
☐ Yes	☐ No	Is source partially removed and residual source being managed?
☐ Yes	☐ No	Is source controlled with physical or administrative methods?
☐ Yes	☐ No	Are all pathways of concern identified?
☐ Yes	☐ No	Have all relevant receptors been identified and protected?
☐ Yes	☐ No	Is there a monitoring program in place to verify RMP success?
☐ Yes	☐ No	Are there third parties related to this RMP? (if the answer is 'no', skip the next question.)
☐ Yes	☐ No	If there are third parties, have all of them accepted the RMP?
☐ Yes	☐ No	Is there a commitment from person(s) responsible to implement and monitor the RMP until final remediation guidelines are achieved?
☐ Yes	☐ No	Is there a contingency plan in place should the RMP fail?
☐ Yes	☐ No	Is the RMP implemented for the site?

Public Disclosure and Privacy Notification

The *Record of Site Condition* form is a public record that is disclosed in accordance with section 35 of the *Environmental Protection and Enhancement Act*, *Disclosure of Information Regulation*, and *Ministerial Order 23/2004*. Reasonable efforts have been made to minimize collection of personal information where possible. Personal information on the form is collected under the authority of section 12(c) and other provisions of the *Environmental Protection and Enhancement Act* and is in compliance with section 33(a) and 33(c) of the *Freedom of Information and Protection of Privacy Act* (FOIP). Personal information collected on this form will be used by Alberta Environment and Sustainable Resource Development (ESRD) or the Alberta Energy Regulator (AER), as the case may be, for the purposes of administering its programs.

Accuracy of Information

The information in this document has been submitted by persons other than ESRD or the AER. The Department, the Government of Alberta, and the AER cannot and do not warrant that the information in this document is current, accurate, complete, or free of errors. Persons accessing the information provided should not rely on it, and any reliance on the information provided is taken at the sole risk of the user. Users of this information are advised to conduct their own due diligence to satisfy themselves of the environmental condition of the property of interest.

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8 DECLARATION

This *Record of Site Condition* form was prepared for the purpose of reporting on the state of environmental site conditions and, where applicable, for the purpose of remediation or reclamation, for:

Plan 112 4353, Block 46, Lot 56 (site name) (the "Site").

I, as the licensed operator or authorized representative, have reviewed all information that was used in preparation of this form and I am satisfied that it was prepared in a manner consistent with the Applicable Standard¹ together with any relevant additional guidance that is available from Alberta Environment and Sustainable Resource Development as of this date for conducting environmental site assessments.

Having conducted reasonable inquiries to obtain all relevant information, to my knowledge, the statements made in this form are true as of this date. I have disclosed all pertinent information of which I am aware concerning the historical and current environmental condition of the Site to the Director.

Any use which a third party, other than the Crown in right of Alberta or the AER, makes of this form, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. The undersigned accepts no responsibility for damages, if any, suffered by any third party, other than the Crown in right of Alberta and the AER, as a result of decisions made or actions based on this form. Any exclusions or disclaimers to the contrary contained in any attachment to this form are of no force or effect as against the Crown in right of Alberta and the AER.

Footnote ¹:

"Applicable Standard" means

a) for the purposes of upstream oil and gas sites,

i) *2010 Reclamation Criteria for Wellsites and Associated Facilities Application Guidelines* (ESRD 2011),

ii) *CSA Standard Z769, Phase II Environmental Site Assessment*, as amended, for any Phase II site assessment information used in preparation of this form on all upstream oil and gas sites not included in a) i);

b) for the purposes of all other sites, *CSA Standard Z768, Phase I Environmental Site Assessment*, as amended, for any Phase I site assessment information and with *CSA Standard Z769, Phase II Environmental Site Assessment*, as amended, for any Phase II site assessment information used in preparation of this form.

By signing below, I as the licensed operator or authorized representative, confirm the information provided herein is correct and complete, to the best of my knowledge and belief.

1465770 Alberta Ltd.	Ashley Craig	Manager, Vertex Professional Services Ltd.		14-NOV-2019
Name of operator	Name of authorized representative	Title of authorized representative (e.g. officer, director)	Signature	Date (dd-mon-yyyy)