



PHASE I ENVIRONMENTAL SITE ASSESSMENT

UrbanStar Horse Creek Development
Within NE $\frac{1}{4}$ 29-26-4-W5M
and
Lots 1 & 2, Block 1, Plan 171 1365
Rocky View County, Alberta



Prepared for:

UrbanStar Horse Creek Development Ltd.

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EXECUTIVE SUMMARY

Curtis GEO Solutions Inc. (Curtis) was retained by UrbanStar Horse Creek Development Ltd. (UrbanStar) to conduct a Phase I Environmental Site Assessment (Phase I ESA) on two properties consisting of 120.88-acres of land (referred to in this Report as Parcel A), located within the North East Quarter of Section 29, Township 26, Range 4 West of the 5th Meridian (NE ¼ 29-26-4-W5M) and 159.9-acres of land (referred to in this Report as Parcel B), located within the South East Quarter of Section 32, Township 26, Range 4 West of the 5th Meridian (SE ¼ 32-26-4-W5M) and legally described as Lots 1 & 2, Block 1, Plan 1711365. Both parcels are located in Rocky View County, Alberta (referred to in this Report as The Site, Subject Site or Subject Property). It is proposed that a residential subdivision be constructed on the Site.

The Phase I ESA was completed in general accordance with the Canadian Standards Association (CSA) document Z768-01 (R2016) entitled "Phase I Environmental Site Assessments". The Phase I ESA was conducted for UrbanStar for due-diligence purposes prior to the development of residential lands on the Site. The purpose of the Phase I ESA was to assess if evidence of potential or actual environmental concerns exist in connection with the Site, as a result of current or past activities on the Site or neighbouring properties. A Phase I ESA does not include intrusive investigation, sampling or testing of air, soil, groundwater or surface water.

Curtis reviewed selected historical and current information pertaining to the Site and surrounding properties such as aerial photographs, land titles, publicly-available environmental assessments and reports and regulatory information. A site inspection was undertaken on April 28, 2018 by Curtis personnel. The purpose of the property visit was to look for obvious visual indications of historical or current operations that may have resulted in possible soil and/or groundwater contamination. The site visit included a visual evaluation of the grounds for indications of hazardous-waste storage and disposal areas, storm drainage, underground and aboveground storage tank locations. An interview with people familiar with the Site was also conducted.

The Site encompasses approximately 280 acres (113 ha) of the land zoned RF: Ranch and Farm and is shown in Drawings I-1 and I-2 included in Appendix I of this Report. The Property is situated at the western edge of the Cochrane North Area Structure Plan boundary adjacent to the hamlet of Cochrane Lake, directly east of Horse Creek Road and west of Range Road 44.

The Property contains two (2) parcels:

- **Parcel A:** consisting of 120.88-acres (48.9 ha) of land, legally described as a portion of the North East Quarter of Section 29, Township 26, Range 4 West of the 5th Meridian (NE ¼ 29-26-4-W5M).
- **Parcel B:** consisting of 159.9-acres (64.7 ha) of land, legally described as Lots 1 & 2, Block 1, Plan 1711365

Parcel A consists of one (1) irregularly shaped portion of land with an area of 120.88 acres (48.9 ha). Parcel B consists of two (2) nearly rectangular lots with an area of 159.9 acres (64.7 ha).

At the time of the Site reconnaissance, Parcel A was observed to be vacant, undeveloped land which appears to have not been farmed recently. A portion of the northeastern quadrant of the parcel was being used as a hay field. No structures were observed on the Site.

The northern portion of Parcel B (Lot 1) consists of undeveloped mixture of pasture and hay fields and the southern portion of Parcel B (Lot 2) contains a residence with several old structures from a historical farmstead.

Based on the review of aerial photographs, land titles and interview with the tenant on Parcel B, the Subject Property and surrounding area appeared to have been historically agricultural/pasture land from the early 1910-1920s. Reportedly, a dairy farm operated on Parcel B at some time in 1960s. Parcel B improvements include several structures/features related to historical operations and current residential use, such as the old original homestead house, present residential house, pump house, livestock waterers and a few dilapidated wooden structures (possible old sheds, fences, hoop shelters and/or barns). The layout of this portion of land is illustrated on Drawing I-2A.

The surrounding lands are generally a mixture of pasture, cropped land and rural residential subdivisions. The Site is surrounded by Horse Creek Road to the west, Range Road 44 to the east followed by agricultural/residential acreages, similar to those which surround the Site from the north and south. Horse Creek is running west of the Site across Horse Creek Road. The right-of-way for discontinued pipeline, licensed by Plains Midstream Canada ULC, crosses the Subject Site area along its eastern boundary.

While this report provides an overview of potential environmental concerns, both past and present, the environmental assessment is limited by the availability of information at the time of conducting the assessment. Based on the assessment undertaken, the following notable findings were identified and assumptions used:

- The Subject Property was developed for farming as early as the 1910s. Farming operations continued at the Site (Parcel A) until the transfer of land to UrbanStar in 2017 and Parcel B still farmed.
- It is possible that unreported disposal of waste or hazardous material on the southern portion of Parcel B (Lot 2) might have occurred which could not be identified, since many farms used unregulated dumps/landfills for solid waste disposal. These possible disposal dumps, pits and ponds were commonly used for the disposal of waste oil, pesticide containers and solvents that were used to degrease engine parts, old diesel tank used to provide fuel for farm operations. Therefore, these dumps/landfills on agricultural type properties might contain potentially significant environmental contamination, which would

be considered as a recognized environmental condition.

- Based on the age of the structures on Parcel B, the potential exists for lead-based paint (LBP) and asbestos-containing material (ACM) to be present in the building materials of these structures.
- There are a number of water wells present within the Subject Site. Three (3) of them were observed on Parcel B. Two (2) water wells are located west of the house on the pasture area and currently not in use. One (1) domestic well is located approximately 25 m northwest of the house and is used for daily domestic operations. One (1) old water well is located in the pumphouse.
- The house on Parcel B is connected to an onsite septic system. An old 500 gallon septic tank is located immediately east of the house. Septic systems treat and disperse relatively small volumes of wastewater. When properly sited, designed, constructed and operated they pose a minimal threat to subsurface quality, but when improperly used or operated, septic systems can be a significant source of subsurface contamination.
- There is a discontinued pipeline, licensed by Plains Midstream Canada ULC, crossing the Subject Site area along its eastern boundary (Pipeline Licence No. 26431, Line No. 2).

No further environmental investigations are recommended for the Subject Property at this time. However, based on the foregoing findings/assumptions, Curtis recommends the following:

- There is a potential for localized impacts on the southern portion of Lot 2 (Parcel B). However, it is not likely to be of an overall concern and would be very hard to locate and identify. Therefore, Curtis recommends special attention be accorded during the Site development excavation activities in the area of the homestead farm on Parcel B. If any buried suspect material is discovered during excavation works, an environmental consultant should be contacted to address the issue to evaluate soil quality for potential presence of hydrocarbons, metals, pesticides, herbicides and fertilizers. Curtis GEO Solutions Inc. would be pleased to provide this service upon request.
- Inactive water wells/septic system located on the Subject Property shall be properly abandoned/decommissioned prior to the Site development in accordance with the Government of Alberta regulations.
- Designated Substance Survey (DSS) should be completed prior to demolition/renovation of any buildings/structures on the Site to further assess the presence of asbestos, lead, and other designated substances and handle the materials accordingly to Occupational Health and Safety (OHS) and/or Building Code.
- No issues were reported regarding spills, releases or environmental concerns relating to the

pipeline located along the eastern boundary of the Subject Site. Prior to the development of the Site, the owner/operators of the pipeline should be contacted to verify facility status and any additional development setbacks that may be required in addition to the legislative setback envelopes. (Detailed information on this pipeline is attached in Appendix III).

The Report is based on data and information collected during this Phase I ESA conducted by Curtis. It is based solely on the conditions of the Subject Property as observed by Curtis personnel at the time of the Site visit on April 28, 2018, supplemented by a review of historical information and data reported by regulatory agencies and an interview with the tenant on the Site. This report is not, nor should it be interpreted as, a regulatory compliance audit.

The findings from the records search and Site Inspection were compiled and presented in the following sections of this report.

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1.0 INTRODUCTION

Presented in this report are the results of the Phase I ESA conducted by Curtis on two properties consisting of 120.88-acres of land (referred to in this Report as Parcel A), located within the North East Quarter of Section 29, Township 26, Range 4 West of the 5th Meridian (NE ¼ 29-26-4-W5M) and 159.9-acres of land (referred to in this Report as Parcel B), located within the South East Quarter of Section 32, Township 26, Range 4 West of the 5th Meridian (SE ¼ 32-26-4-W5M) and legally described as Lots 1 & 2, Block 1, Plan 1711365. Both parcels are located in the Rocky View County, Alberta (referred to in this Report as The Site). The Phase I ESA was conducted for UrbanStar to support the proposed residential subdivision.

The findings in this report are based on a thorough review of available environmental regulatory records, examination of historical aerial imagery, surficial geology and topographic maps, a review of the deed history, completion of a site inspection, and an interview with the people who have knowledge of the Site history, usage, and conditions.

1.1 PURPOSE OF STUDY

The purpose of the Phase I ESA is to gather information about the Site and surrounding areas, identify conditions indicative of releases or threatened releases of hazardous substances, pollutants and contaminants, petroleum or petroleum products, controlled substances and objectively determine or identify any area of existing or potential environmental concerns or liabilities associated with the property in a systematic and comprehensive manner in accordance with CSA Z768-01, dated November 2001 (reaffirmed 2016).

1.2 SCOPE OF WORK

The scope of work conducted through the Phase I ESA consisted of the following:

- a. Historical review of selected land titles back to 1910;
- b. Historical review of aerial photographs back to 1944;
- c. Records search provided by Petroleum Tank Management Association of Alberta (PTMAA);
- d. Record search provided by Alberta Environment and Parks, information routinely available in the Environmental Site Assessment Repository (ESAR);
- e. Records search provided by Rocky View County;
- f. Alberta Environment Water Well Database search;
- g. Record search provided by Alberta Energy Regulator (AER);
- h. Review of Alberta Abandoned Well Locations Map;
- i. Review of Flood Hazard Map through Alberta Environment and Parks;
- j. Site inspection;
- k. Interviews (when possible);
- l. Reporting.

A Phase I ESA does not include intrusive investigation, sampling or testing of air, soil, groundwater or surface water. The assessment of the Site for the potential presence of hazardous building materials was based on the age of the on-site buildings, and this Phase I ESA does not constitute a Hazardous Materials Survey or Designated Substances Survey.

2.0 HISTORICAL REVIEW

2.1 INTERVIEWS

Curtis interviewed the tenant on Parcel B who is currently using the Property for residential purposes, on April 28, 2018 during the Site reconnaissance and on May 26, 2018 by telephone. He indicated:

- He has resided on the property for twenty-two (22) years, since 1996;
- The property has been used in the past as cultivated cropland, pasture and rural residential;
- For the last 22 years, the area outside of the farmstead was leased as a pasture and hay land.
- The original homestead house on the Property is located in its original location and the existing house was brought on the Property during the 1960s. Two additions, west and north of the house, were constructed since that time. The heat to the house is provided by gas, only to the main portion of the house. This portion of the house contains a basement. The well which is located in close proximity to the house, is utilized to supply drinking water to the house and daily domestic use.
- No fuel tanks were located on the property during the time he has lived on the site.
- There is one 500 gallon septic tank located near the southeast corner of the house and the septic field is located further south-southeast. The septic system is pumped out by a professional septic tank pumper once a year.
- There is a pipeline passing through the right of way along the eastern property line.
- He is not aware of any environmental concerns or liabilities associated with the activities on the Parcel B.

On May 16, 2018, after receiving the Land Development Package from Alberta Energy Regulator (AER), Curtis interviewed by telephone an employee of AER on the detailed information on the pipeline crossing the Subject Property along its eastern boundary. He recommended ordering a copy of the pipeline License, which will provide Curtis more detailed information. This information is described in *Section 2.6.2 Alberta Energy Regulator (AER)* of this report.

2.2 AERIAL PHOTOGRAPHS

Curtis reviewed aerial photographs obtained from the University of Calgary air photo collection and Google Earth images for land use that may have had a detrimental effect on the Subject Site. The aerial photographs and Google Earth images cover the period of time from 1944 to 2015. These photos were

used to evaluate historical and general land usage, structures, improvements, access to property, adjacent land use and others. The general type of activity on a site, as well as the land use changes, can often be discerned from the type and layout of features visible in the photograph, however, specific elements of site operations is difficult to discern from the photograph. The table below provides descriptions and interpretations from the aerial photographs:

DATE	PHOTOGRAPH DESCRIPTION
1944	Parcel A is undeveloped vacant land. The western portion of the parcel appears to be used as pasture/hay land and the eastern portion is used as cropland. Parcel B is partially covered by the photograph (only southern portion is visible on the photo). The farmstead appears in the south-central portion of Parcel B, surrounded by the pastures to the west and cropland to the east. The ravine is located between the two parcels. There is a dirt road from the Horse Creek Road over the hill to the house. The Horse Creek Road and the Horse Creek are visible west of the Subject Site. Surface drainage channel is visible in the ravine, running toward the Horse Creek direction. The escarpment toward Horse Creek Road is observed in the western portion of the Site. The surrounding area appears to be vacant/undeveloped pasture/crop lands.
1949	The quality of the 1949 photograph is affected by overexposure, resulting in loss of detail in the light area, however, the surrounding area has not significantly changed. Cochrane Lake appears a few kilometers east-southeast of the Subject Site and its drainage patterns are observable west of it.
1962	A new house is visible on Parcel B (appears to be present house). North-northwestern and eastern portions of the land from the farmstead are cultivated. The rest of the area is used for grazing. Range Road 44 has been constructed. A wetland is visible east of Parcel B across Range Road 44. The portion of the road is built around a waterbody at the time and crossing north half of Parcel B along its eastern boundary. A new farm/ranch appears adjacent to the southwest corner of Parcel A. There is a dirt road from the farmstead leading to the top of the hill over the eastern side of Parcel A. Surrounding area remains basically unchanged.
1970	The Subject Site and surrounding properties remain basically unchanged. A farmstead appearing east of the southern boundary of Parcel A, on adjacent quarter section, located closer to Cochrane Lake.
1975	The Subject Site remains basically unchanged, except that there are additional structures appearing on the farmstead lot located adjacent to the southwest corner of the Parcel A. Range Road 44 was straightened. There are new rural residential houses/farms appearing north and east of the Subject Site.
1988	The Subject Site remains basically unchanged. There are new farms/ranches appearing to the west of the Site across Horse Creek Road as well as north of the Site.
1998	The large barn and some of the outbuildings on Parcel B has been removed. A new home appeared on adjacent lot located west of Parcel B and a new farm/ranch adjacent to the southeast corner of Parcel A. Parcel A remains basically unchanged.
2002	The Subject Site remains basically unchanged. An area with water (ei. slough) is visible on the eastern portion of Parcel B. A new homes appearing east of the Subject Site boundary across Range Road 44.
2011-2016	No major or apparent changes noted from the 2002 aerial photo.

The above aerial photographs are included in this report in Appendix I (see Drawings I-3 to I-14).

There are data gaps in the aerial photos, however, considering the small amount development and consistent historical use within the project area, the data gaps are not considered to be significant to the completion of the Phase I ESA.

2.3 FIRE INSURANCE RECORDS

The Fire Insurance Plans (FIPs) are a useful tool for an environmental professional to determine building construction and prior use of a target and surrounding properties. Fire insurance plans were searched at the University of Calgary Library. No plans were found for the Subject Property, since it is located outside of the boundaries of the FIPs.

2.4 DIRECTORIES

No directories for Rocky View County were available for review.

2.5 LAND TITLES

A search of historical land titles for the Subject Property was conducted by the South Alberta Land Registration District, Government of Alberta. The following current and historical selected titles were reviewed by Curtis:

TITLE	LEGAL ADDRESS	DATE	OWNERS
PARCEL A*			
171 290 969	NE ¼-29-26-4-W5M	22/12/2017	UrbanStar Horse Creek Development Ltd.
111 087 210	NE ¼-29-26-4-W5M	11/04/2011	Wendy Ann Iredale
051 233 484 +1	NE ¼-29-26-4-W5M	04/07/2005	Robert Bruce Iredale & Edna C. Iredale
051 021 299	NE ¼-29-26-4-W5M	17/01/2005	Robert Bruce Iredale & Edna C. Iredale
791 119 178	NE ¼-29-26-4-W5M	25/07/1979	Robert Bruce Iredale (Accountant) & Edna C. Iredale
741 071 211	NE ¼-29-26-4-W5M	23/07/1974	Robert Bruce Iredale (Accountant) & Edna C. Iredale (His Wife)
159 K 45	NE ¼-29-26-4-W5M	25/11/1969	Robert Bruce Iredale (Accountant) & Edna C. Iredale (His Wife)
159 K 44	The road on Plan 1592I in the NE ¼-29-26-4-W5M containing 4.17 acres	25/11/1969	Robert Bruce Iredale (Accountant) & Edna C. Iredale (His Wife)
137 H 10	NE ¼-29-26-4-W5M	04/12/1964	Robert Bruce Iredale (Accountant) & Edna C. Iredale (His Wife)
107 J 198	NE ¼-29-26-4-W5M	12/09/1957	Philip D. Cook (Farmer)
785 207	NE ¼-29-26-4-W5M	11/03/1949	Jenny Cook (Widow)
785 206	NE ¼-29-26-4-W5M	11/03/1949	Jenny Cook (Widow) of Cochrane, AB executor of the will of Edward Cook (Deceased)
33 G 94	NE ¼-29-26-4-W5M	13/06/1923	Edward Cook (Farmer) of Cochrane, AB
24 O 142	NE ¼-29-26-4-W5M	26/08/1920	Edwin Townend (Rancher) of Cochrane, AB
18 H 48	NE ¼-29-26-4-W5M	06/03/1918	Edwin Townend (Rancher) of Cochrane, AB
17 U 85	NE ¼-29-26-4-W5M	01/02/1915	John Alexander Clayton of Medicine Hat, AB
PARCEL B*			
181 088 037	Plan 1711365, Block 1, Lot 1	01/05/2018	Christine Martha Toth executrix for Joseph Leslie Toth & Christine M. Toth of Calgary as to an undivided 3/160 interest
181 088 037 +1	Plan 1711365, Block 1, Lot 2	01/05/2018	Christine Martha Toth executrix for Joseph Leslie Toth & Christine M. Toth of Calgary as to an

TITLE	LEGAL ADDRESS	DATE	OWNERS
			undivided 3/160 interest
171 141 256	Plan 1711365, Block 1, Lot 1	27/06/2017	Gustav R. Tapuska of Calgary as to an undivided 2/160 interest
171 141 256 +1	Plan 1711365, Block 1, Lot 2	27/06/2017	Gustav R. Tapuska of Calgary as to an undivided 2/160 interest
041 193 202	SE 1/4 -32-26-4-W5M	28/05/2004	Anwar A Nour & Maria C. Nour of Calgary as joint tenants as to and undivided 3/160 interest
041 114 045	SE 1/4 -32-26-4-W5M	28/05/2004	Anwar A Nour & Maria C. Nour of Calgary as joint tenants as to an undivided 3/160 interest and Phasewest Corporation of Calgary as to an undivided 39/160 interest
981 126 056	SE 1/4 -32-26-4-W5M	04/05/1998	Phasewest Corporation of Calgary as to an undivided 73/160 interest et al (see title for complete list of names)
901 252 535	SE 1/4 -32-26-4-W5M	09/10/1990	Mary Ann Papley of Cochrane
741 071 201	SE 1/4 -32-26-4-W5M	23/07/1974	Holly Brown of Cochrane (Farmer)
69 T 167	SE 1/4 -32-26-4-W5M	27/05/1946	Holly Brown of Cochrane (Farmer)
471 194	SE 1/4 -32-26-4-W5M	03/04/1933	Anny Johnson of Cochrane (Married Woman)
471 193	SE 1/4 -32-26-4-W5M	03/04/1933	Andrew Chapman and Frederick Maggs of Cochrane (Merchants) executors of the will of Robert Dowson (Deceased)
MV 166	SE 1/4 -32-26-4-W5M	25/10/1910	Robert Dowson of Cochrane (Farmer)

*For complete legal description of the parcel, please refer to the title.

The review of the titles indicates utility right-of-way over the years to Cochrane Lake Gas Co-op Ltd., FortisAlberta Inc., Plains Midstream Canada ULC, Koch Pipelines Canada Ltd. Utilicorp Networks Canada Ltd. and Pipeline Management Inc. Based on the land title review, it does not appear that there are any environmental concerns from the previous or current ownership. Copies of the titles are included in Appendix V.

2.6 GOVERNMENT RECORDS

The information obtained during the records review is provided in the following sections. Copies of the research documents are included in Appendix II.

2.6.1 Petroleum Tank Management Association of Alberta (PTMAA)

Curtis submitted a request to the PTMAA for any records of active tank sites and inventory of abandoned tank sites for the Subject Site and surrounding properties located at:

- Section 29, Township 26, Range 4, West of the 5th Meridian (29-26-4-W5M);
- Section 32, Township 26, Range 4, West of the 5th Meridian (32-26-4-W5M).

No records of active and/or abandoned tanks were identified by the PTMAA record search for the Subject Site or surrounding area.

The PTMAA maintains a registry of active tank sites and abandoned tank sites. The PTMAA cannot guarantee that tanks do not or have not existed on the locations requested. The main limitation of the PTMAA database is that it only includes information reported through registration or a survey of abandoned sites since 1992. A copy of the research document is included in Appendix II.

2.6.2 Alberta Energy Regulator (AER), Active and Abandoned Pipelines & Alberta Abandoned Well Locations

Curtis submitted a request to AER for records on active and abandoned wells, pipelines and coal mines (Land Development Information Package- LDIP) for the Subject Site and surrounding area. A search of the AER LDIP – Pipelines Lookup Report records revealed that there is one (1) discontinued condensate pipeline, licensed by Plains Midstream Canada ULC, crossing the Subject Site area along its eastern boundary (Pipeline Licence No. 26431, Line No. 2, passing from 16-23-24-4-W5M to 16-18-27-3-W5M).

The following table describe several pipelines passing east of the Subject Site at the distance approximately from 0.5 km to 1.0 km.

Licence No.	Line No.	From Location	To Location	Status	Substance	Licensee
12721	1	2-28-26-4-W5M	2-28-26-4-W5M	Abandoned	Natural gas	NOVA Gas Transmission Ltd.
13009	1	10-16-26-4-5	14-21-26-4-5	Operating	HVP Products	Alberta Ethane Development Company Ltd.
13009	2	14-21-26-4-5	13-1-27-4-5	Operating	HVP Products	Alberta Ethane Development Company Ltd.
53516	3	4-6-27-4-5	9-16-26-4-5	Operating	Natural Gas	AltaGas Ltd
56404	1	9-16-26-4-5	6-21-26-4-5	Operating	Butane	Plains Midstream Canada ULC
56404	2	6-21-26-4-5	6-28-26-4-5	Operating	Butane	Plains Midstream Canada ULC
56404	3	6-28-26-4-5	7-33-26-4-5	Operating	Butane	Plains Midstream Canada ULC
56404	4	7-33-26-4-5	1-4-27-4-5	Operating	Butane	Plains Midstream Canada ULC
80006	3	15-32-28-4-5	9-10-24-4-5	Operating	Natural Gas	Foothills Pipe Lines Ltd.
80096	1	3-4-28-4-5	6-19-26-4-5	Operating	Natural Gas	NOVA Gas Transmission Ltd.
80096	20	15-32-28-4-5	2-33-26-4-5	Operating	Natural Gas	NOVA Gas Transmission Ltd.
80096	21	2-33-26-4-5	9-16-26-4-5	Operating	Natural Gas	NOVA Gas Transmission Ltd.

Additional request was submitted by Curtis AER for the records on Pipeline Licence No. 26431, Line No. 2, which crosses the Subject Site along its eastern boundary. A search of the AER records revealed that a licence for this pipeline was issued in 1994. In January 15, 1998 the above-mentioned pipeline licence has been transferred from Koch Pipelines Ltd. to Koch Pipelines Canada Ltd. On April 9, 2009 a licence transfer application approval was issued between Pipeline Management inc. and Plains Midstream Canada ULC. On September 1, 2015 an application was approved to discontinue line 2 of licence #26431. According to the document titled *Pipeline Split and Reactivation, Voluntary Self-Disclosure, Plains Midstream Canada ULC (Plains), Pipeline Licence No. 26431, Line 002* sent by Plains Midstream Canada to AEN and dated May 29, 2018, “...At the time the application was filed it was believed that the entire pipeline was not operating but discontinued. However, after the amendment was submitted and approved, it was discovered that a portion of the subject pipeline is still operating. As such, this application

is being submitted to split line 2 and reactivate the portion that is currently operating in order to bring this pipeline into compliance. Currently CO is flowing from licence 54497-1 on to the subject line at 16-18-027-03W5M. The CO then flows on line 2 from this location to 13-30-028-02W5M. The subject pipeline has been pigged and purged from its start location at 16-23-024-04W5M to 16-18-027-03W5M where block valves exist. This section of pipe (which is approximately 37.41 km long) is going to remain as line 2 of licence 26431 and continue to be discontinued. The new section will be approximately 20.45 km long, starting in 16-18-027-03W5M and flow to 13-30-028-02W5M and be reactivated. Refer to the completed D056 application." The verification of the maps, indicated that the portion of line that is reactivated on the section of 20.45 km is not located on the Subject Property.

The information obtained from AER, concerning the pipeline licence No. 26431, Line No. 2 and other research documents are attached in Appendix III.

Curtis also reviewed About Pipelines Map available online, that shows liquids and natural gas transmission pipelines and related facilities operated by full members of the Canadian Energy Pipeline Association. The map also shows information about any pipeline incident that has been reported to the appropriate pipeline regulator, dating back to 2008. According to the About Pipelines Map, the same pipelines, described above, are located on the map. The search map is included in Appendix II. No incidents were recorded around the Subject Property or surrounding area within 0.5 km. The following table summarizes information on the facilities closest to the Site.

A search of the AER records for the Subject Property revealed no active or abandoned wells, coal mines or high pressure pipelines located on the Subject Property within 0.5 km.

The reviewed information available at Alberta Abandoned Well Locations Map View, through the Alberta Energy Regulator, also indicated no abandoned well locations on the Subject Site or adjacent properties. According to this map, closest abandoned well is located approximately 2.5 km northeast of the Subject Site and the information on this well is described below:

ABANDONED WELLS						
Licence Number	Licence Name	Status	Latitude	Longitude	Fluid	Licence Surface Location Label <small>(LSD-SEC-TWP-RANGE-MERIDIAN)</small>
0030883	Repsol Oil & Gas Canada Inc.	RecCertified	51.264992	-114.475542	Not Applicable	10-34-026-04W5

The Incidents and Complaints Lookup Report indicates a few incidents but the locations of their occurrences are more than 1.0 km from the Subject Property. The search documents from AER are included in Appendix III.

2.6.3 Rocky View County

Curtis contacted Rocky View County for information regarding the Subject Property available under the *Freedom of Information and Protection of Privacy Act* for the time period from as far back as possible until present. The following records were requested:

- 1) Historical Land Use (historical operations/activities on the Subject Site);
- 2) Any storage, handling, spills, leaks or release of hazardous substances or waste dangerous goods on the Subject Site and immediate area within 100 m;
- 3) Above ground or underground fuel storage tanks on the Subject Site and immediate area;
- 4) Fire on/or in the immediate area within 100 m of the Subject Site. Any outstanding requirements, orders or complaints and last inspection date;
- 5) Any environmental impact studies and risk assessment reports prepared for the Subject Site and/or adjacent lands.

There was an Incident Response Report from Rocky View County Fire concerning the property located at 264258 Range Road 44. This property is located east from the Subject Site across the Range Road 44. The report dated April 7, 2012, stated that Fire services received the call for the above mentioned address for the reason of the grass fire was impinging on a house *“71 Engine was stood down in route by 51 command as 51 apparatus were able to control the grass fire rapidly.”*

The Rocky View County search revealed no current or historical records that may suggest the environmental concerns for the Subject Property.

2.6.4 Wells & Alberta Environment and Parks Water Well Information Database (AEPWWID)

AEP water well database was searched for a radius of about 500 m relative to the quarter-section land parcel and listed fifty-five (55) wells and/or test holes located on the Subject Site and in its vicinity. They were mainly all drilled for domestic/stock or agricultural purposes. Detailed information on the summary of the well logs and well locations map is included in Appendix IV.

During the visual site inspection on April 28, 2018, three (3) water wells, apparently the same described in the water well reports by AEP Water Well Information Database, were observed within Parcel B. The wells were located in the southwestern portion of the parcel. According to the tenant on the parcel, the well which is located in close proximity to the house, is utilized to supply drinking water to the house and daily domestic use. There is also an old water well located in the pumphouse, which was not accessible to verify during the Site inspection. Based on AEPWWID report, this well was installed in 2004.

No wells were observed on Parcel A during the Site reconnaissance, however, the Alberta Environment Water Well Database indicates nine (9) wells/testholes. Most probably, these wells are located on/or in close proximity to the house on the property located adjacent to the SW corner of Parcel A.

It should be noted, that the identified water wells have not been field verified, except for three (3) water wells located in the southwestern portion of Parcel B.

The following table contains information on these water wells. Water wells identified for the quarter section on Parcel A are highlighted in green and for the quarter section on Parcel B in blue:

WELL ID	LSD	SEC	TWP	RGE	M	DATE COMPLETE D	DEPT H (FT)	TYPE OF WORK	USE	WELL OWNER
350581	NW	28	26	4	5	1990-03-19	170.00	New Well	Domestic	MAXIM, MABEL
351534	SW	32	26	4	5	1989-06-05	150.00	New Well	Domestic	KROLL, RICHARD
351535	NE	32	26	4	5	1989-03-20	217.00	New Well	Domestic	BRAUN, GEORGE
354098	NE	29	26	4	5	1994-05-05	60.00	New Well	Domestic	IREDALE, KEN
354098	NE	29	26	4	5	1998-10-09	0.00	Old Well-Abandoned	Domestic	IREDALE, BOB
357376	12	33	26	4	5	1991-05-06	62.00	New Well	Domestic & Stock	ZINTER, RON/DENNIS
357730	SW	33	26	4	5	1991-03-27	280.00	New Well	Domestic	SARDI, LES
364662	NW	28	26	4	5	N/A*	0.00	Chemistry	Domestic	TATTILLO, DALE HUGH
366385	13	33	26	4	5	1992-09-09	220.00	New Well	Domestic	ZINTER, RON
366386	12	33	26	4	5	1992-09-08	80.00	New Well	Domestic	ZINTER, DENNIS
366542	13	28	26	4	5	1992-10-13	130.00	New Well	Domestic	PETERSON, BOB
376536	NE	29	26	4	5	1993-10-27	180.00	New Well	Domestic	IREDALE, KEN
376536	NE	29	26	4	5	1998-10-09	180.00	Old Well-Abandoned	Domestic	IREDALE, BOB
385007	5	28	26	4	5	2005-06-29	135.00	Deepened	Domestic	RANKIN, PAUL
385007	5	28	26	4	5	1994-07-28	115.00	New Well	Domestic	HOUGHTON, JIM
387394	SW	28	26	4	5	1973-06-01	109.00	New Well	Domestic	FENTON, RON
387396	SW	28	26	4	5	1979-08-29	146.00	Deepened	Domestic & Stock	FENTON, RON
387397	NW	28	26	4	5	N/A*	70.00	Chemistry	Domestic	ELLIOTT, R.H.J.
387399	NW	28	26	4	5	1964-01-01	86.00	New Well	Domestic	DAVIES, GORDON
387401	NW	28	26	4	5	1981-01-29	55.00	New Well	Domestic & Stock	ELLIOTT, BOB
387415	NE	29	26	4	5	1971-08-01	200.00	New Well	Domestic	IREDALE, W.
387416	NE	29	26	4	5	1975-07-22	253.00	Deepened	Stock	IREDALE, R.B.
387417	NE	29	26	4	5	1976-06-10	115.00	New Well	Domestic	IREDALE, R.A.
387418	NE	29	26	4	5	1977-04-29	205.00	New Well	Stock	IREDALE, R.A.
387424	SE	32	26	4	5	N/A	75.00	Chemistry	Domestic	BROWN, TOM
387425	SW	32	26	4	5	1989-04-01	130.00	New Well	Domestic	GORGICHUK, GERALD
387426	NW	32	26	4	5	N/A*	140.00	Chemistry	Domestic	LEWIS, W.R.
387427	NE	32	26	4	5	1970-08-10	77.00	New Well	Domestic & Stock	LAMBERT, G.L.
387428	NE	32	26	4	5	1968-05-16	97.00	New Well	Domestic & Stock	FLUNDRA, DENNIS
387429	NE	32	26	4	5	1973-11-15	122.00	New Well	Domestic	SCHMEIL, FRANK
387430	NE	32	26	4	5	1982-03-26	195.00	New Well	Domestic	DORN, TOM

WELL ID	LSD	SEC	TWP	RGE	M	DATE COMPLETE D	DEPT H (FT)	TYPE OF WORK	USE	WELL OWNER
387431	NE	32	26	4	5	1989-05-15	50.00	New Well	Domestic	WHITE, RICHARD
387432	NE	32	26	4	5	1989-05-24	100.00	New Well	Domestic	WHITE, RICHARD
387433	NE	32	26	4	5	1989-06-03	60.00	New Well	Domestic	WHITE, R.
388465	NW	32	26	4	5	1994-07-23	190.00	New Well	Domestic	LEWIS, WALTER
388467	NW	32	26	4	5	1994-07-22	200.00	New Well	Domestic	LEWIS, WALTER
399543	NE	29	26	4	5	1994-11-02	55.00	Test Hole-Abandoned	Domestic	IREDALE, ROBERT
415245	14	29	26	4	5	1995-09-15	200.00	New Well	Domestic	IREDALE, BOB
415245	14	29	26	4	5	1995-09-15	200.00	New Well	Domestic	IREDALE, BOB
466125	8	32	26	4	5	1996-04-27	220.00	New Well	Domestic	T.C. ENG LTD #COMMON AREA 2
466126	1	32	26	4	5	1996-04-26	320.00	New Well	Domestic	T.C. ENGINEERING LTD #1
467193	NW	32	26	4	5	1996-10-15	196.00	New Well	Domestic	JONES, LES
491795	SW	28	26	4	5	1998-07-22	380.00	Test Hole-Abandoned	Domestic	KIMMETT, KELLY
491796	SW	28	26	4	5	1998-07-22	150.00	New Well	Domestic	KIMMETT, KELLY
494551	NW	28	26	4	5	1999-10-12	160.00	New Well	Domestic	PETERSON, BOB
494900	NW	28	26	4	5	1999-07-01	40.00	Old Well-Test	Domestic	SABATINI ENVIRONMENTAL INC
1020019	NE	32	26	4	5	2002-10-23	140.00	New Well	Domestic	JONES, LES
1020022	NW	32	26	4	5	2001-07-01	100.00	New Well	Domestic	PETERSON, ELSA
1020023	NW	33	26	4	5	2004-06-09	190.00	New Well	Domestic	ZINTER, WILBERT
1020024	NW	33	26	4	5	2004-06-10	180.00	New Well	Domestic	ZINTER, WILBERT
1021017	NW	33	26	4	5	2004-06-08	80.00	New Well	Domestic	ZINTER, WILBERT
1021117	NW	32	26	4	5	2001-07-01	100.00	New Well	Domestic	PETERSON, ELSA
1465007	SE	32	26	4	5	2004-08-20	100.00	New Well	Domestic	CLARKE, TOM
1465015	SE	29	26	4	5	2007-08-29	200.00	New Well	Domestic	KOOPERBERG, HENRI
1555988	NE	32	26	4	5	2008-12-11	214.00	New Well	Domestic	POPOWICH, DON

Note: * N/A - not available

2.6.5 Alberta Environment and Parks, Environmental Site Assessment Repository (ESAR)

A search of the Alberta Environment and Parks, Environmental Site Assessment Repository (ESAR) was completed for any records routinely available under the Environmental Protection and Enhancement Legislation pertaining to the Subject Property and surrounding area within 0.5 km. Alberta Environment has not identified any routinely available records pertaining to the Subject Property or area searched. A copy of the research document (map) is included in Appendix II.

2.6.6 Previous Environmental Reports

No environmental reports for the Site or adjacent properties were available for the review.

3.0 SITE CHARACTERIZATION

3.1 LOCATION & PHYSICAL SETTING

The Subject Property is set within the rural community of Rocky View County in Alberta, approximately 7 km northeast of the Town of Cochrane. It is also located within the South East Quarters of Section 32, Township 26, Range 4, West of the 5th Meridian (SE ¼ 32-26-4-W5M) and the North East Quarters of Section 29, Township 26, Range 4, West of the 5th Meridian (NE ¼ 29-26-4-W5M). The civic address for the Lot 2, Block 1, Plan 1711365, which is located within SE ¼ 32-26-4-W5M is 265029 Range Road 44 (old farmstead with a house currently occupied by a tenant). No civic address exists for the rest of the Subject Site. The Property is situated directly east of Horse Creek Road and approximately 1.2 km west-northwest of Cochrane Lake and is located at the western edge of the Cochrane North Area Structure Plan boundary adjacent to the hamlet of Cochrane Lakes. The Site encompasses approximately 280 acres (113 ha) and is shown in Drawings I-1 and I-2 included in Appendix I of this Report.

3.2 ZONING

According to the information obtained from the Rocky View County, the property is zoned RF: Ranch and Farm.

"The purpose and intent of this District is to provide for a range of parcel sizes for agricultural uses. This district provides for traditional agricultural pursuits on large parcels of land. It also recognizes the emerging trends towards new agricultural uses which may be successfully developed on smaller parcels of land." (Rocky View County, Part Five of the Bylaw No. C-4841-97 (adopted by the County Council on September 29, 1998 and last updated on October 25, 2017)). A map of the Rocky View County Land Use Districts of December 21, 2017 obtained from the Rocky View County website is included in Appendix II of this report.

3.3 SITE RECONNAISSANCE, DESCRIPTION AND TOPOGRAPHY

On April 28, 2018, a Curtis representative conducted an unescorted reconnaissance of the Property. The purpose of the property visit was to look for obvious visual indications of historical or current operations that may have resulted in possible soil and/or groundwater contamination and to assess whether any surrounding land uses may have and/or are currently impacting the environmental condition of the Subject Property. The site visit included a visual evaluation of the grounds for indications of hazardous-waste storage and disposal areas, storm drainage, underground and aboveground storage tank locations. All observations were made from accessible areas of the Site. Photographs taken during the site reconnaissance are provided in Appendix I.

On the day of the Site reconnaissance on April 28, 2018 the weather was +25°C and sunny. Parcel A consists of one (1) irregularly shaped portion of land with an area of 120.88 acres (48.9 ha). Parcel B consists of two (2) nearly rectangular lots with an area of 159.9 acres (64.7 ha).

At the time of the Site reconnaissance, Parcel A was observed to be vacant, undeveloped land which appears to have not been farmed recently. A portion, occupying the northeastern quadrant of the parcel, appears to be used as a hay field. No structures were observed on the Site.

Parcel B consists of two lots. Lot 1 is occupying the northern half of Parcel B and consisting of vacant land with the eastern portion used as the hay field and its western portion as pasture. Lot 2 is occupying the southern half of Parcel B, consisting also mainly of the hay land in the eastern portion and a pasture in the western part of the lot. Lot 2 has a residence located in its southeastern portion. The house is an old two-story dwelling surrounded by trees and shrubs. The entrance to the house is from Range Road 44 by a driveway. An old wooden pump house, used currently as a storage shed was located near the northwestern corner of the house. A pile of old household items, tires and old carpets was located on the ground immediately next to it. The original homestead house was noted approximately 20 m west of the residential house and it was filled to the ceiling with old household items and debris. Several other time-worn household items such as a dryer machine, broken couch, old broken wood feeding trough as well as a pile of tree branches, a bobbin of woven no climb horse fence were located around the old homestead house. A few dilapidated structures, possible old sheds, hoop shelters and/or barns and a few livestock waterers on concrete pad were located north-northwest of the house. Curtis observed that Parcel B exterior area outside of the Site structures footprints was surfaced with the native grasses, hay land and pasture spaces. Curtis' representative looked for indications of on-site septic systems. According to the Site tenant, the Site is serviced via a septic system with an old 500 gallon septic tank and septic field located further south-southeast of the house. During the Phase I ESA site walk, the cover to the septic tank was observed a few meters from the southeastern corner of the house. The water well, supplying drinking water for the Site, was observed north of the house and two other water wells (used in the past for the stock) were located west and northwest of the farmstead. Reportedly, an old water well is located in the pumphouse which was not accessible during the Site visit. The interior of the residential house and old homestead house were also not accessible at the time of the Site visit.

The area surrounding the Subject Property is rural landscape composed of single family residential and small scale agriculture/farm operations pasture. The discontinued pipeline right-of-way was inspected by Curtis representative along the eastern boundary of the Site. No evidence was found during the area visit indicative of potential Recognized Environmental Conditions (RECs) in the vicinity of the Subject Property.

The western portion of the Site is relatively flat and the southern portion is an escarpment sloping to the west toward Horse Creek Road. There is a ravine located between two Parcels with a surface drainage channel toward the Horse Creek. According to GPS Geoplaner, available online, the elevation of the Subject Property ranges from approximately 1306.6m above the Sea level on the western portion to approximately 1256.0 m above the Sea level on its eastern portion. Two lower areas with the surface

water were observed in the northeastern and southeastern portions of the Parcel B. A surface drainage channel transects the Subject Property from the middle of the Site between two Parcels to the west towards Horse Creek.

The general layout of the Site, the regional topographic map and GPS Geoplaner drawing and selected photographs taken at the time of the Site reconnaissance are included in Appendix II .

3.4 REGIONAL GEOLOGY & HYDROGEOLOGY

Based on an available surficial geology maps, the regional surficial geology for the Subject Site area consists primarily of *Moraine* deposits overlying the bedrock of the *Paskapoo Formation* to which is assigned an early Tertiary age. The soil itself falls into the *Chernozemic Classification* (Soil Classification of Canada, 2010) which is a black-colored soil containing a high percentage of humus (7-15%), phosphorus and ammonia. This soil is typical of the Prairie Regions.

Paskapoo Formation

"Recessively weathering, grey to greenish-grey mudstone and siltstone with subordinate (although generally better exposed) pale grey, thick- to thin-bedded, commonly cross-stratified sandstone; minor conglomerate, mollusc coquina, and coal; nonmarine".

Source: Alberta Geological Survey, Bedrock Geology of Alberta (2013), Prior, G.J., Hathway, B., Glombick, P.M., Pana, D.I., Banks, C.J., Hay, D.C., Schneider, C.L., Grobe, M., Elgr, R. and Weiss, J.A., Alberta Energy Regulator, AER/AGS Map 600. The map is included in Appendix II.

Moraine

"Diamicton (till) deposited directly by glacial ice with a mixture of clay, silt, and sand, as well as minor pebbles, cobbles, and boulders; characterized by a lack of distinctive topography. Locally, this unit may contain blocks of bedrock, stratified sediment, or lenses of glaciolacustrine and/or glaciofluvial sediment."

Source: Surficial Geology of Alberta, M.M. Fenton, E.J. Waters, S.M. Pawley, N. Atkinson, D.J. Utting and K. McKay, Alberta Geological Survey Map 601. The map is included in Appendix II.

The regional ground water flow direction, based on topographic features, is expected to be west toward Horse Creek. A site-specific groundwater investigation would be required to determine the actual direction of groundwater flow beneath the Site, which is beyond the scope of this assessment.

3.5 SURFACE WATER

Two (2) lower areas with surface water, located in the northeast and southeast portions of Parcel B, were observed during the Site reconnaissance on April 28, 2018. Some snow melted surface water was

also observed along the eastern property line in its northern portion (Parcel B). There is a ravine located between two Parcels with a surface drainage channel toward the Horse Creek. A low area with water was observed in the northeast portion of Parcel A. No other watercourses, pits, lagoons or ditches were identified to be present at the Site.

The nearest surface water body is the Horse Creek running along the western boundary of the Subject Site, across Range Road 271, approximately 40 m west of the western boundary of the Site. A wetland was visible to the east of Parcel B on surrounding land across Range Road 44. No flood hazard was identified by The Flood Hazard Map Application, obtained from Alberta Environment and Parks website, included in Appendix II.

3.6 GROUND COVER

A visual inspection of the Subject Property was undertaken on April 28, 2018. Parcel A was observed to be vacant, undeveloped land covered with native grasses and some shrubs. A portion, occupying the northeastern quadrant of the parcel is used as a hay field. No structures were observed on the Site.

Parcel B was covered with native grasses, shrubs, trees, original homestead house, present house, pump house, a few dilapidated wooden structures (possible old sheds, fences, hoop shelters and/or barns). These items were observed on the southern edge of Parcel B, while the remaining of the parcel was covered with native grasses and portions of a hay field.

3.8 CURRENT SITE USE

Parcel A is currently vacant. A southeastern portion of Parcel B is used for residential purposes by the tenant and the remaining of the parcel is used (leased) as a hay/pasture land. There is also a right-of-way for discontinued condensate pipeline, licensed by Plains Midstream Canada ULC, crossing the Subject Site area along its eastern boundary (Pipeline Licence No. 26431, Line No. 2, passing from 16-23-24-4-W5M to 16-18-27-3-W5M).

3.9 INSPECTION OF SURROUNDING PROPERTIES

The observation and evaluation of adjoining properties to the Subject Site were limited to features and conditions that were visible from public rights-of-way. The Site is located in a rural area with residential/agricultural land uses. The following observations were made:

North	Residential/agricultural acreages/farms
South	Vacant undeveloped land
Southwest	Residential acreage/ranch located at 264136 Horse Creek Road (6 acres parcel; land use was amended from Ranch and Farm District to Farmstead District)
West	Range Road 44A followed by residential agricultural/farmland and Horse Creek
East	Vacant pasture & wetlands from the northern portion and residential/agricultural acreages from the southern portion

The surrounding sites appear to be well maintained and no evidence of environmental contamination was noted during the field review and any records or documentation of any spills or leaks were discovered. However, three aboveground storage tanks were observed on the property adjacent to the Subject Site (Parcel A) at its southwest corner. It appears that these tanks are used for vehicles refuelling. Curtis did not inspect this property closely since the owner of the property was not available during the Site reconnaissance. If a spill or leak occurred in the past or will occur from these tanks, based on the location of this site (topographically downgradient), distance and groundwater flow direction, it is unlikely that it may impact the Subject Property.

There were no obvious indications that activities previously associated with adjacent/nearby properties had impacted the Subject Site. No evidence of RECs was observed on the surrounding properties. Past and present land uses of the surrounding areas constitute a moderate potential for environmental site contamination due to agricultural/farmland/ranch uses.

Therefore, at this time it does not appear that there is any risk of contamination from surrounding properties to the Subject Property.

4.0 BUILDING CONSTRUCTION

4.1 CURRENT BUILDINGS

According to the aerial photos reviewed and the interview with the owner of the house on Parcel B, the present house was brought on the Property approximately in the 1960s and two additions, west and north of the house, were built since.

At the time of the site inspection on April 28, 2018, the following buildings/structures were observed on the Subject Site:

Parcel A

There are no building/structures located presently on this site.

Parcel B

- Two-storey residential house with wood framing, vinyl exterior sidings and combination roof; the basement area exist only under the main part of the house. There are two additions to the house from its northern and southern sides.
- One-story wooden structure old homestead house with hipped roof.
- A few dilapidated structures, possible old sheds (some of them have old concrete floor, hoop shelters and/or barns and a few livestock waterers on concrete pad as well as old dilapidated wooden fences;

Select photographs of the structures on the Subject Property are presented in Appendix I of this report.

4.2 PREVIOUS BUILDINGS

According to the review of the aerial photographs and interview with the owner of the Site, current buildings/structures located on Parcel B and described above, are the original constructions on the Subject Site. An aerial photograph (likely 1970s-1980s), included in Appendix I, provided by tenant on Parcel B, illustrates all original structures on the farmstead. It was not possible to identify the age of the old homestead house and outbuilding structures, however based on the historical titles it is possible that they were constructed in the early 1910s. No building/structures existed on Parcel A in the past.

4.3 UTILITIES

The existing house on Parcel B is served by an individual water well for residence and an individual septic tank (500 gallons) with a septic field for sewage treatment and disposal. The electric power, natural

gas and telephone service are available for the house. Heat is provided to the main area of the house by natural gas. Refined petroleum discontinued pipeline belonging to Plans Midstream Canada traverses the Property within its eastern boundary in a north-south direction. Parcel A was not serviced with any utilities.

5.0 ENVIRONMENTAL HAZARD POTENTIAL

5.1 OPERATING HISTORY

The history of the Subject Site and surrounding areas was interpreted based on a review of land titles, aerial photographs (from 1944 to 2016) and the interview with the tenant on Parcel B, presently living on the Site. Aerial photographs and titles are attached in Appendix I & II.

According to Curtis' search, the Subject Property and surrounding area appeared to have been undeveloped agricultural/pasture/hay fields from the early 1910's. Reportedly, a dairy farm operated on Parcel B at some time in 1960s. According to the interview with the tenant, who is one of the present owners of Parcel B and the current tenant, he is using the property for residential purposes from 1996 and the fields surrounding the house were leased for the pasture/hay purposes during the last 22 years.

Parcel A has been never developed and was used in the past as a pasture/hay fields by the previous owner of the parcel who lives presently on the lot adjacent to the southwest corner of the Site. Farming operations continued at the Site (Parcel A) until the transfer of land to UrbanStar in 2017.

5.2 HAZARDOUS WASTE SUBSTANCES AND DANGEROUS GOODS

During the walk-through of the facility, no hazardous waste substance containers or dangerous goods were observed on the Subject Property, or on adjoining and neighbouring properties (from public access points).

5.3 SOLID WASTE

No waste is generated on Parcel A since it is vacant and undeveloped. All non-hazardous waste on Parcel B is reportedly disposed of in the Waste Transfer Station by the tenant residing on the site. A pile of old household items, tires and old carpets was observed on the ground immediately next to the pump house. The original homestead house was filled to the ceiling with old household items and debris. Several other time-worn household items such as dryer machine, broken couch and chairs, a pile of tree branches, a bobbin of woven no climb horse fence were observed around the old homestead house.

5.4 UNDERGROUND (UST) AND ABOVE (AST) GROUND STORAGE TANKS

Curtis did not observe any active aboveground storage tanks (ASTs) during the Site reconnaissance inspection on April 28, 2018 and did not observe fill or vent pipes suggesting the presence of underground storage tanks (USTs). The present tenant on Parcel B advised Curtis that there are currently no active ASTs or USTs at the Subject Property. Additionally, no records of active and/or abandoned tanks were identified by the PTMAA file search for the Subject Property or surrounding area.

However, three ASTs were observed on the property adjacent to the Subject Site (Parcel A) at its southwest corner. It appears that these tanks are used for the cars fueling. Curtis did not inspect this property closely since the owner of the property was not available during the Site reconnaissance. If a spill or leak occurred in the past or will occur from these tanks, based on the location of this site (topographically downgradient), distance and groundwater flow direction, it is unlikely that it may impact the Subject Property.

According to an aerial photograph, dated likely 1970s-1980s (attached in Appendix I), a large propane tank was located near the eastern side of a new house. A tractor was also observed on the photo, thus diesel and oil tanks were potentially used to provide fuel and maintenance for farm operations.

5.5 WASTE WATER

No wastewater is generated on Parcel A since the property is vacant and undeveloped. Wastewater on Parcel B is discharged to the on-site 500 gallon underground septic tank located near the southeast corner of the house. The septic fields are located further south-southeast of the tank. The present tenant on the Site informed Curtis that the septic tank is pumped out once per year by a professional company. No wastewater discharges, other than domestic wastewater, were identified to be produced on this parcel.

5.6 SURFACE STAINING/STRESSED VEGETATION

No staining or stressed vegetation was observed on the Subject Property at the time of the site reconnaissance on April 28, 2018;

5.7 BUILDING MATERIALS

The results of the building visual review were presented in an earlier section of this report. A summary of the buildings specific materials has been presented below.

5.7.1 Polychlorinated Biphenyls (PCBs)

From the 1930s to the 1970s, PCBs were widely used in a number of industrial materials, including sealing and caulking compounds, inks and paint additives. They were also used to make coolants and lubricants for certain kinds of electrical equipment, including transformers and capacitors. PCBs are an environmental concern as they do not readily degrade and have been identified to bio-accumulate. In Canada the federal Environmental Contaminants Act (1976) prohibited the use of PCBs in heat transfer and electrical equipment installed after September 1, 1977, and in transformers and capacitors installed after July 1, 1980. In addition, the storage and disposal of PCB waste materials is regulated.

Based on the age of the structures (constructed/installed before 1970s), it is possible that ballasts containing PCB's could be present within the site structures.

5.7.2 Asbestos Containing Materials (ACM's)

The common use of friable asbestos containing materials (ACM's) in construction stopped in the mid-1970's. Based on the date of construction of portions of the Site buildings (prior to 1970s) there is a potential for asbestos materials to be present within these structures. It should be noted that intrusive investigation into the interior of walls and roof of the Subject buildings/structures were not carried out and therefore the investigation does not consist of a complete asbestos survey. The only method of confirming whether materials are asbestos-containing is to sample and analyze the suspect materials. Any potential ACM must be treated as an ACM unless laboratory analysis indicates otherwise. Sanding, grinding, drilling or similar contact with asbestos containing materials (ACM's) has the potential for generating airborne asbestos fibres during future occupancy, renovations, alterations and/or building demolition. All handling of ACM's must be performed in accordance with Occupational Health and safety Regulation and/or building demolition guidelines.

5.7.3 Lead- Based Materials

The Canadian regulations limited the amount of lead in interior paint by weight in 1976. Lead-based water supply pipes were used greater than 50 years ago. Between 1930 and 1986, most buildings used copper pipe with lead-solder joints. Based on the approximate construction date of the residential

dwellings, lead-based piping and/or paint may be present. A detailed inspection and/or paint-testing program were not undertaken. The presence of lead-based materials can only be verified through sampling and analysis of suspect samples.

5.7.4 Radon Potential

Radon gas is a product of the decay series that begins with uranium. Radon is produced directly from radium, which can be commonly found in bedrock that contains black shale and/or granite. Radon gas can migrate through the ground and enter buildings through drains, pipe voids, porous concrete or fractures. Radon tends to accumulate in poorly ventilated basements. Long-term exposure to radon has been associated with lung cancer. No samples were taken as part of this study to confirm the presence of radon. In 2007, Health Canada revised the national guideline for radon in indoor air quality from 800 Bq/m³ to 200 Bq/m³. Specifically, Health Canada now recommends that remedial measures should be undertaken in a dwelling whenever the average annual radon concentration exceeds 200 Bq/m³ in the normal occupancy area. Note that the 2014 edition of the Alberta Building Code identified new building requirements to protect against radon gas. It is recommended that all dwellings be tested for radon.

5.7.5 Ozone Depleting Substances

The Ozone-Depleting Substances Regulations, 1998 (ODSR 1998) were made under the Canadian Environmental Protection Act (CEPA) in December 1998. The ODSR 1998 combined and replaced the Ozone-depleting Substances Regulations (SOR/95-576), the Ozone-depleting Substances Products Regulations (SOR/95-584) and the Chlorofluorocarbon Regulations, 1989 (SOR/90-127). The Regulations reflect Canada's commitment to meet its requirements under the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol). The Montreal Protocol is an international agreement signed by over 180 countries to control the production and exchange of certain ODSs. The Regulations are intended to further reduce emissions of ODSs. These regulations were amended in 2001, 2002, and 2004.

The only possible source of ozone depleting substances would be in refrigerators, air conditioners and freezers/coolers manufactured prior to 1990. Any used appliances should be disposed of in accordance with current regulations.

5.7.6 Electromagnetic Frequencies (EMFs)

Electrical currents induce electromagnetic fields. No scientific data supports definitive answers to questions about the existence or non-existence of health risks related to electromagnetic fields. No high-voltage transmission lines or electrical substations, which could generate significant electromagnetic fields, were identified on or adjacent to the Site properties.

6.0 FINDING AND RECOMMENDATIONS

Curtis performed a Phase I ESA on two properties consisting of 120.88-acres of land (Parcel A), located within the North East Quarter of Section 29, Township 26, Range 4 West of the 5th Meridian (NE ¼ 29-26-4-W5M) and 159.9-acres of land (Parcel B), located within the South East Quarter of Section 32, Township 26, Range 4 West of the 5th Meridian (SE ¼ 32-26-4-W5M) and legally described as Lots 1 & 2, Block 1, Plan 1711365. Both parcels are located in the Rocky View County, Alberta. The Site is proposed for a residential subdivision.

While this report provides an overview of potential environmental concerns, both past and present, the environmental assessment is limited by the availability of information at the time of conducting the assessment. Based on the assessment undertaken, the following notable findings were identified and assumptions used:

- The Subject Property was developed for farming as early as the 1910s. Farming operations continued at the Site (Parcel A) until the transfer of land to UrbanStar in 2017 and Parcel B still farmed.
- It is possible that unreported disposal of waste or hazardous material on the southern portion of Parcel B (Lot 2) might have occurred which could not be identified, since many farms used unregulated dumps/landfills for solid waste disposal. These possible disposal dumps, pits and ponds were commonly used for the disposal of waste oil, pesticide containers and solvents that were used to degrease engine parts, old diesel tank used to provide fuel for farm operations. Therefore, these dumps/landfills on agricultural type properties might contain potentially significant environmental contamination, which would be considered as a recognized environmental condition.
- Based on the age of the structures on Parcel B, the potential exists for lead-based paint (LBP) and asbestos-containing material (ACM) to be present in the building materials of these structures.
- There are a number of water wells present within the Subject Site. Three (3) of them were observed on Parcel B. Two (2) water wells are located west of the house on the pasture area and currently not in use. One (1) domestic well is located approximately 25 m northwest of the house and is used for daily domestic operations. One (1) old water well is located in the pumphouse.

- The house on Parcel B is connected to an onsite septic system. An old 500 gallon septic tank is located immediately east of the house. Septic systems treat and disperse relatively small volumes of wastewater. When properly sited, designed, constructed and operated they pose a minimal threat to subsurface quality, but when improperly used or operated, septic systems can be a significant source of subsurface contamination.
- There is a discontinued pipeline, licensed by Plains Midstream Canada ULC, crossing the Subject Site area along its eastern boundary (Pipeline Licence No. 26431, Line No. 2).

No further environmental investigations are recommended for the Subject Property at this time. However, based on the foregoing findings/assumptions, Curtis recommends the following:

- There is a potential for localized impacts on the southern portion of Lot 2 (Parcel B) however, it is not likely to be of an overall concern and would be very hard to locate and identify. Therefore, Curtis recommends special attention be accorded during the Site development excavation activities in the area of the homestead farm on Parcel B. If any buried suspect material is discovered during excavation works, an environmental consultant should be contacted to address the issue to evaluate soil quality for potential presence of hydrocarbons, metals, pesticides, herbicides and fertilizers. Curtis GEO Solutions Inc. would be pleased to provide this service upon request.
- Inactive water wells/septic system located on the Subject Property shall be properly abandoned/decommissioned prior to Site development in accordance with the Government of Alberta regulations.
- Designated Substance Survey (DSS) should be completed prior to demolition/renovation of any buildings/structures on the Site to further assess the presence of asbestos, lead, and other designated substances and handle the materials accordingly to Occupational Health and Safety (OHS) and/or Building Code.
- No issues were reported regarding spills, releases or environmental issues relating to the pipeline located along the eastern boundary of the Subject Site. Prior to the development of the Site, the owner/operators of the pipeline should be contacted to verify facility status and any additional development setbacks that may be required in addition to the legislative setback envelopes. (Detailed information on this pipeline is attached in Appendix III)

The Report is based on data and information collected during this Phase I ESA conducted by Curtis. It is based solely on the conditions of the Subject Property as observed by Curtis personnel at the time of the Site visit on April 28, 2018, supplemented by a review of historical information and data reported by regulatory agencies and an interview with the tenant on the Site. This report is not, nor should it be interpreted as, a regulatory compliance audit.

The Phase I ESA has been prepared for the exclusive use of UrbanStar Horse Creek Development Ltd. and its agents. It has been prepared in accordance with generally accepted engineering practices conforming to the CSA 768-01 (R2016) and no other warranty, expressed or implied, is made.

We trust that the report fulfills your requirements for this project. Should you require additional information or have any questions or concerns, please contact us.

Yours very truly,

Curtis GEO Solutions Inc.



A handwritten signature in blue ink, appearing to read "Irina Sirota".

Irina Sirota, M.Sc.
Environmental Services, Manager

Permit P13667

Date:

JUNE 14, 2018

Michael J. Staple, B.Sc., P.Eng
Senior Geotechnical Engineer

/is

7.0 REFERENCES

1. Alberta Environment and Parks, *Flood Hazard Map Application*
<http://maps.srd.alberta.ca/FloodHazard>
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<http://mapviewer.aer.ca>
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<https://www.rockyview.ca>
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16. Soil Order Map of Canada
<https://www.soilsofcanada.ca>
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SCHEDULE A TERMS AND CONDITIONS

- 1. Agreement.** You have retained Curtis GEO Solutions Inc. (“**GEO**”) to provide you (the “**Client**”) with certain environmental, geotechnical, engineering, testing and/or consulting services (the “**Services**”), as set out in the engagement letter (the “**Letter**”) to which these general terms and conditions (the “**Terms**”) are attached. The Letter and the Terms together constitute the entire agreement (the “**Agreement**”) between the Client and GEO with respect to the subject matter hereof and supersedes all prior oral and written representations and all prior communications and agreements.
- 2. Services and Schedule.** GEO will commence the Services upon execution of the Letter by the Client, and shall use reasonable efforts to complete the Services in accordance with the schedule included in the Letter, if any, and within a reasonable time if no schedule is included in the Letter. Notwithstanding anything to the contrary set forth in the Agreement, any date(s) for completion of the Services are estimated and not warranted or guaranteed by GEO, and GEO shall not be liable in damages for delays in achieving such date(s).
- 3. Changes and Additional Services.** The Client may at any time, by written notice to GEO and provided that such changes are within the general scope of the Services, request changes to the specifications, time of performance, or other requirements of the Services. In such event, GEO shall advise the Client in writing of the estimated impact of such changes on GEO’s cost and time of performance of the Services, and the estimated price and schedule, if any, in respect of the Services shall be adjusted. Any such adjustments will be reflected in a mutually agreed written agreement which, when executed by both parties and delivered, will modify and change the Agreement.
- 4. Estimates.** Estimates prepared by GEO (including, but not limited to, estimates of quantities, costs and schedules) represent GEO’s judgment based upon its familiarity with the industry and the information available at the time of the estimate. It is recognized, however, that neither the Client nor GEO has control over factors which affect or relate to such estimates. Accordingly, GEO cannot and does not warrant or represent that actual items, amounts, costs, quantities or time periods will not vary significantly from any estimates prepared by GEO.
- 5. Taxes.** The rates, fees and charges set forth the Agreement do not include GST, HST, withholding, sales, excise, use, value added, gross receipts or any other similar taxes imposed on the Client, GEO and/or GEO’s subcontractors in connection with the performance of this Agreement. The Client shall be responsible for direct payment of all such taxes, or reimbursement to GEO of all payments made by GEO in connection with such taxes. Payment to GEO shall be net of any taxes or withholdings required by any taxing authority other than a taxing authority of, or authorized by, the Government of Canada or a province or territory in Canada, and any such taxes or withholdings which GEO may pay shall be full reimbursed by the Client.
- 6. Warranty and Performance of Services.** GEO warrants that the Services to be performed hereunder shall be performed in accordance with the standard customarily used by an experienced and competent consulting, geotechnical and professional engineering organization rendering the same or similar services under the same or similar circumstances. GEO and its directors, officers, employees, agents, representatives and approved subcontractors (the “**Representatives**”) performing the Services will have and maintain throughout the term of this Agreement all skills, qualifications, licences, expertise and experience necessary to perform the Services in a professional, workmanlike and timely manner in accordance with commercially reasonable industry standards. GEO shall perform, and shall ensure the Representatives shall perform, the Services in accordance with all applicable laws, orders, regulations, ordinances, standards, codes, guidelines and other rules of all lawful authorities and regulatory bodies having jurisdiction over GEO, the Representatives or the Services. GEO makes no other warranty of any kind whatsoever express or implied.
- 7. Independent Contractor.** GEO shall conduct the Services as an independent contractor, and shall have responsibility for and control over the details and means of the performance of the Services. GEO shall not be the agent of the Client when performing the Services unless expressly agreed to by GEO and the Client in writing.
- 8. Sub-Consultants and Contractors.** Where the Services require GEO to obtain the services of individuals and companies with specialized expertise and/or services (the “**Additional Services**”), these Additional Services may be obtained by GEO for the benefit of the Client. As these Additional Services are for the Client’s benefit, the Client shall indemnify and hold GEO harmless from any claims, damages, fees or expenses, arising out of or in any way related to such Additional Services. This includes the responsibility for payment for the Additional Services rendered and pursuit of damages for errors, omissions or negligence by those parties in carrying out the Additional Services. In particular, these provisions apply to the use of laboratory testing services.
- 9. Documentation.** Any drawings, reports, documentation or other written materials (hereinafter collectively “**Documents**”) prepared for or issued to the Client by GEO hereunder shall be subject to any limitations or assumptions identified in such Documents. Such Documents shall be for Client’s use only in connection with the project or property for which such Documents were prepared. Other than the responsibility undertaken by GEO pursuant to Article 6 (Warranty and Performance of Services), GEO assumes no liability with respect to the use of, or damages resulting from the use of, any information, method, or process disclosed in any Document issued by GEO hereunder. GEO’s Documents present professional opinions and/or findings of a scientific and technical nature. While attempts may be made to relate the data and findings to applicable laws and regulations, such Documents are not to be construed as legal opinions or as representations as to the requirements of, or compliance with, laws, rules, regulations or policies of federal, provincial or local government agencies.
- 10. Independent Judgement of Client.** The information in GEO’s Documents is based on GEO’s interpretation of conditions revealed through limited investigation conducted within a defined scope of services and within the limits of consideration offered. GEO shall not be responsible for the independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of our report, or any part thereof, which may be based on information contained in our Documents. This limitation of liability includes any decisions made to either develop, purchase or sell property, accept, work upon or proceed with a project described in the Letter or our report, or to proceed or not with GEO’s recommendations.
- 11. Ownership of Work.** Any Document issued by GEO hereunder shall become the property of the Client once GEO has been paid in full, however, field notes, backup data, internal calculations and any intellectual property (including any algorithm or electronic source code) developed by GEO in connection with the Services shall remain the property of GEO. Notwithstanding the foregoing, GEO retains the right to use such Documents for its own purposes provided, however, that GEO shall not use or disclose any confidential information, subject to the provisions of Article 19

(Confidential Information), of the Client without the Client's prior consent.

- 12. Indemnification.** Subject to the limitations of liability set out in the Agreement, including, without limitation, the limitations set out in Section 13 (Limitation of Liability): (i) GEO shall indemnify, defend and hold the Client harmless from and against any claims, liabilities, suits, loss, cost, expense and damages arising for or in connection with GEO's performance of the Services pursuant to this Agreement: (x) to the extent caused by the negligence or misconduct of GEO, or the Representatives; or (y) as expressly provided for in this Agreement, and (ii) the Client shall indemnify, defend and hold GEO and the Representatives harmless from and against any claims, liabilities, suits, loss, cost, expense and damages arising from or in connection with the Services: (x) to the extent caused by the negligence or misconduct of Client, its employees, agents and other contractors; or (y) as expressly provided for in this Agreement. Any claim for indemnification under this Agreement, must be brought not later than **[one]** year after the date of substantial completion of the Services.
- 13. Limitation of Liability.** GEO's aggregate liability for damages arising out of or in connection with the Services provided by GEO under this Agreement shall not, except as otherwise agreed by GEO in writing, exceed the aggregate amount paid by the Client to GEO for the Services under this Agreement. In no event will GEO be liable for any consequential or indirect damages suffered by the Client, including without limitation, any damages for loss of profits, loss of use of property or liabilities for the Client's breach of any other contracts or agreements.
- 14. Exploration, Testing and Sampling.** Where the Services involve excavation or drilling wells or boreholes, the Client acknowledges and agrees that: (i) the use of exploration and test equipment may unavoidably damage or alter the property surface or subsurface and GEO shall not be liable for any such unavoidable damage or alteration; (ii) GEO will not be responsible for personal and property damages due to its interference with subterranean structures, such as pipes, tanks and utility lines that are not called to GEO's attention in writing or correctly shown on plans provided by the Client, or for which clearances cannot be obtained from utility owners or their agents, or which are incorrectly cleared by utility owners or their agents; (iii) for any borehole or well installed as part of the Services which is to remain in place for long term monitoring purposes, GEO will not be responsible for any repairs or maintenance to the borehole or well after installation that may be required due to weathering, erosion, site conditions, site activities or any other reason beyond GEO's control, and (iv) GEO has no responsibility for any borehole, well or excavation after it has been decommissioned as part of the Services or otherwise, and the Client shall indemnify and hold GEO harmless from any claims, damages, fines, fees, litigation or expenses arising out of or in any way related to the foregoing.
- 15. Hazardous Substances.** Environmental science and engineering consulting projects often have the potential to encounter dangerous or hazardous substances and the potential to cause an accidental release of those substances. If hazardous, toxic or dangerous wastes or materials as defined by provincial or federal regulations ("**Wastes**") are encountered at any site where the Services are being conducted and if such Wastes require handling, transportation or disposal at an off-site facility, GEO will assist by advising the Client of the Client's options but, although GEO may make arrangements on behalf of the Client or sign manifests on behalf of the Client in connection with the Client's disposal of such Wastes, in no event will GEO accept title to, or take control of, or responsibility for any Wastes. The Client shall indemnify and hold GEO and the Representatives harmless from any claims, damages, fines, fees, litigation or expenses, arising

out of or in any way related to such Wastes, including, but not limited to, the handling, transportation, disposal or accidental release of such Wastes. This indemnification shall extend to all claims brought or threatened against the GEO or the Representatives under any federal or provincial statute as a result of providing the Services. In addition to the above indemnification, the Client further agrees not to bring any claims against the GEO or its Representatives in connection with any of the aforementioned causes. The Client also recognizes that the activities of GEO may uncover previously unknown Wastes and that such a discovery may result in the necessity to undertake emergency procedures to protect employees and contractors as well as the public at large and the environment in general. These procedures may well involve additional costs outside of any expenses or fees previously agreed to by the Client. The Client agrees to pay for any expenses or fees incurred as the result of such discoveries and to compensate GEO through payment of additional fees and expenses for time spent by GEO to deal with the consequences of such discoveries. The Client also acknowledges that the discovery of certain Wastes will require that certain regulatory bodies be informed, as described by regulation and guidelines and accepted protocol, and the Client agrees that notifications to such bodies by GEO will not be a cause of action against or dispute with GEO or the Representatives.

- 16. Information Provided by Client.** GEO shall be entitled to rely on, and shall have no liability for defects or deficiencies in the Services attributable to its use of, data, design criteria, drawings, specifications or other information furnished by the Client to GEO and the Client shall indemnify and save harmless GEO and its Representatives from any and all claims of any kind arising out of, relating to, caused by, or contributed to by any errors or omissions in the information provided by the Client to GEO. GEO shall advise the Client, prior to use thereof, of any defects, deficiencies or omissions in information furnished by the Client to GEO that GEO may discover in its routine review and inspection thereof, but GEO shall be under no obligation to review any such Client-furnished information for completeness or correctness.
- 17. Access, Approvals and Permits.** The Client shall be responsible for all arrangements to enable GEO to enter public and private property as required for GEO to perform the Services. The Client shall furnish such approvals and permits from any and all governmental authorities having jurisdiction over the applicable property and such approval and consent from others as may be necessary.
- 18. Safety.** The Client shall be responsible for providing and maintaining a safe work site for GEO, the Representatives and its contractors and their respective employees and agents and the public and third parties. In providing the Services, GEO will comply with laws and regulations relating to occupational health and safety which are applicable to the Services and will be responsible for the conduct of its employees, subcontractors and equipment at the work site. The presence of GEO personnel on the work site shall not be construed in any way to relieve the Client or any contractors on the work site from their responsibilities for work site safety, public safety or the physical environment.
- 19. Confidential Information.** GEO shall maintain as confidential, and shall ensure its Representatives maintain as confidential and not disclose to others without the Client's prior written consent, all information obtained from the Client. The Client shall maintain as confidential, and shall ensure its agents, representatives, employees, and partners maintain as confidential and not disclose to others without GEO's prior written consent, all information obtained from GEO which (i) a third party would reasonably consider to be confidential; or (ii) GEO expressly

designates in writing to be "CONFIDENTIAL". The terms of this Agreement, including but not limited to the applicable rates and charges, and any personal information regarding any of GEO's staff are hereby designated as "CONFIDENTIAL". Each of the Client and GEO shall use confidential information received from the other only for the purpose of performing the Services or as otherwise contemplated by this Agreement. Notwithstanding anything to the contrary contained in this Agreement, nothing herein shall prevent a party from disclosing to others or using in any manner: (i) information that is or becomes a part of the public domain other than by acts or omissions of the receiving party or its personnel in violation of this Agreement, (ii) information that lawfully becomes available to a party on a non-confidential basis from a third party, (iii) information that a party can prove was in its possession at the date it entered into this Agreement and was not acquired directly or indirectly from the other party, (iv) information a party can establish was independently developed by its personnel without any access to the confidential information, or (v) information that a party is required to disclose by any applicable law, regulatory authority or court of competent jurisdiction.

20. **Suspension or Termination of Services by GEO.** GEO shall be entitled to suspend or terminate the Services under this Agreement should the Client: (i) fail to compensate GEO in accordance with the terms and conditions of the Agreement; (ii) fail to keep, observe or perform any other material covenant, agreement, term or provision to be kept, observed or performed by the Client under this Agreement, and such default shall continue for a period of thirty (30) days after written notice thereof has been provided by GEO; (iii) become subject to any bankruptcy or insolvency law, or if any involuntary petition under any such law is filed against the Client and not dismissed within five (5) days; or (iv) make any assignment of its property for the benefit of creditors. In the event of such suspension or termination, GEO shall be entitled to compensation described in Article 22 (Rights upon Suspension or Termination).
21. **Suspension or Termination of Services by Client.** The Client may, by written notice, suspend, delay or interrupt the Services in whole or in part for such period of time as the Client may determine. The estimated cost and schedule of the Services shall be adjusted to account for the delay caused by such suspension. The Client may at any time, with thirty (30) days written notice to GEO, terminate all or any part of the Services. In the event of such suspension or termination, GEO shall be entitled to compensation described in Article 22 (Rights upon Suspension or Termination).
22. **Rights upon Suspension or Termination.** In the event this Agreement is terminated prior to completion of the Services, GEO shall be compensated for Services performed prior to the effective date of such termination plus the reasonable costs, and settlement of subcontracts, purchase orders, and other commitments incurred by GEO in connection with the performance of the Services. GEO shall not be liable to the Client for claims or damages resulting from termination of this Agreement or the Services or any portion thereof, for any reason whatsoever, including, without limitation, costs paid by the Client to complete unfinished Services or engage a replacement provider of the Services. To the extent GEO incurs costs in connection with the implementation of any suspension, GEO shall be compensated for such costs by the Client.
23. **Applicable Law.** This Agreement shall be construed and enforced in accordance with the laws of the province of Alberta and the laws of Canada applicable therein.
24. **Collection of Fees and Expenses.** If GEO refers amounts payable to GEO under this Agreement for collection to a lawyer,

an agent, or a collection agency, the Client will be responsible for paying such reasonable fees that GEO may incur in the collection of such amounts. Interest shall be payable at a rate of [18%] per annum on any amounts not paid when due.

25. **Severability.** If any provision of this Agreement is determined by a court to be invalid or unenforceable, the remainder of this Agreement shall remain in full force and effect.
26. **Dispute.** Any disputes between the parties hereto which arise out of this Agreement which cannot be settled amicably by the parties shall be submitted to binding arbitration in accordance with the *Arbitration Act* (Alberta). No decision by the arbitrator shall provide for the payment of punitive, exemplary or other such damages, and the cost of arbitration shall be apportioned according to the determination of the arbitrator.
27. **Inurement.** This Agreement and all obligations herein contained shall be extended to be binding upon the successors and assigns of the parties hereto.
28. **Assignment.** GEO shall not assign this Agreement (other than accounts receivable) without the prior written consent of Client but may as it deems necessary engage third parties to perform part of the work required in connection with the Services. The Client shall not assign this Agreement without the prior written consent of GEO.
29. **Notices.** All notices and communications required or permitted to be given under this Agreement to either party shall be sent to the address set out on the first page of the Letter. A party may change its address for notice by giving written notice in accordance with this section.
30. **Survival.** The provisions of this Agreement, which by their nature are intended to survive the termination of this Agreement, shall survive the expiration, cancellation, completion or termination, for whatever reason, of this Agreement.
31. **Waiver.** The failure of either party to enforce, at any time, any provision of this Agreement shall not constitute a waiver of such provision in any way or the right of such party at any time to avail itself of any remedies it may have for breach of such provision.
32. **Amendment.** No amendment or modification to the Agreement shall be effective unless it is in writing and executed by both parties.
33. **Force Majeure.** Except as otherwise provided in this Agreement, if and to the extent that either party shall be prevented, delayed or restricted by reason of Force Majeure in the fulfilment of any obligation hereunder, other than a monetary obligation, it shall be deemed not to be in default in the performance of such obligation, and any period for the performance of such obligation shall be extended accordingly and the other party to this Agreement shall not be entitled to any compensation for any loss, inconvenience, nuisance or discomfort thereby occasioned, or to any other remedy in respect thereof. For the purposes of this Agreement, "Force Majeure" means any cause beyond the control of the party affected thereby which prevents the performance by such party of any obligations in this Agreement and not caused by its default or act of commission or omission and not avoidable by the exercise of reasonable care, excluding financial inability of either of the parties.



Curtis GEO Solutions Inc.

Curtis GEO Solutions Inc. supplies Geotechnical Services to southern Alberta and south eastern British Columbia. We are committed to providing our clients with the highest level of satisfaction.

Our focus areas are Commercial, Industrial, Infrastructure and Residential.

Services:

Geotechnical –

- Bearing Inspections
- Foundation Designs
- Foundation Inspections
- Ground Water Depth Assessments
- Investigations
- Pile Designs**
- Pile Installation Inspections**
- Residential Foundations
- Retaining Wall Designs**
- Shoring Designs
- Subsurface Conditions
- Topographical Surveys
- Visual Site Inspections

Field Testing –

- Asphalt**
- Compaction**
- Concrete**
- Pile Installation Inspections**
- Soil Compaction**

Environmental –

- Phase I
- Phase II
- Phase III Remediation
- Risk Management Plans

Laboratory –

- In-house
- Asphalt Testing
- Atterberg Limits
- Concrete Testing**
- Los Angeles Abrasion Testing**
- Marshall Mix Design
- Proctor Compaction Testing**
- Sieve Analysis
- Water Content

Our client base consists of Architects, Builders, Cities, Developers, Municipalities and Owners.

24/7 Service, Certified with CCiL and CNSC, members of APEGA, ASTM & ASGA.

EDUCATION

Environmental Technology Diploma Program

Southern Alberta Institute of Technology (SAIT), Calgary, Alberta

April 2002-2005

M. Sc., Engineering Diploma in Automation and Integrated Mechanization of the Chemical-Engineering Processes

Lviv's Polytechnic Institute, Lviv, Ukraine

1978-1983

PROFESSIONAL EXPERIENCE

CURTIS GEO SOLUTIONS INC., Calgary, Alberta

August 2016-Present

Manager, Environmental Services

Responsible for technical and administrative environmental tasks related to Curtis' projects development:

- Perform Phase I, Phase II Environmental Site Assessments (ESA), Phase III Environmental Site Remediation;
- Assist in environmental components of regulatory applications and obtaining necessary approvals for projects under development;
- Conducting soil and groundwater sampling, environmental monitoring of subsurface conditions, equipment installation and maintenance;
- Supervision of subcontractors for ground disturbance and utility location, borehole drilling, groundwater monitoring well installation and test pit excavation, directing remedial excavations and waste tracking;
- Pile inspection
- Write and synthesize baseline and impact assessment reports;
- Preparation of proposals and cost estimate;

CURTIS ENGINEERING ASSOCIATES LTD., Calgary, Alberta

April 2006 – July 2016

Environmental Technologist /Consultant

Responsible for technical and administrative environmental tasks related to Curtis' projects development as described above.

Practicum at AEUB (Alberta Energy Utilities Board)

May 2005

Midnapore Field Center, Calgary, Alberta

Prepared a Research and Technical report titled "Gasoline emissions from glycol dehydrators in oil and gas industry in Alberta"

SCIENTIFIC RESEARCH INSTITUTE FOR SULFUR INDUSTRY, Lviv, Ukraine

1983-1985

Instrumentation, Measurement & Control Department

Engineer

SKILLS AND QUALIFICATIONS

Languages: Fluent in English, French, Italian, Ukrainian, Russian and Polish

Training:

- Assessment & Remediation of Underground Storage Tank Sites (Alberta Municipal Affairs)
- Ground Disturbance - Supervisory
- Basic Rescuer CPR (Level C)
- CSTS (Construction Safety Training System)
- WHMIS (2015)

RESUME

NAME: Michael J. Staple, B.Sc., P.Eng.

POSITION: Senior Geotechnical Engineer

ACADEMIC QUALIFICATIONS:

- ❖ B.Sc., Civil Engineering, University of Calgary , 2002

PROFESSIONAL AFFILIATION:

- ❖ Association of Professional Engineers, Geologists and Geophysicists of Alberta

EXPERIENCE:

Sixteen years' experience in Geotechnical analysis of soils material testing, sampling, inspection of quality control testing laboratories including:

- ❖ Soils:
 - Field drilling and logging test holes, Design and Reporting
 - Laboratory testing such as moisture contents, visual classification, unconfined compressive strength tests, consolidation tests, hydrometer analysis, Atterberg limits, grain size analysis, specific gravity, moisture - density relationship, radio-isotope density test.
- ❖ Concrete:
 - Field sampling, testing and casting cylinders and test beams, insitu coring of concrete, mix design batch alterations, supervision of pouring.
 - Laboratory testing such as compressive strength of cylinders and beams, analysis and reporting.
 - C.S.A. approved concrete technician.
- ❖ Experience in the Environmental field:
 - Phase I Environmental Assessments
 - Phase II Environmental Assessments

August, 2016 to Present: Curtis GEO Solutions Inc.

2002 to July, 2016: Curtis Engineering Associates Ltd.