PHASE ONE ENVIRONMENTAL SITE ASSESSMENT & SOIL SAMPLING

of

DEVELOPMENT LOT; TANBARK ROAD & WARNER ROAD, NIAGARA ON THE LAKE, ON

For:
Riverview Estates JV Inc.

January 25th, 2019
Project: E-18-54-1

4999 Victoria Avenue
Niagara Falls, ON, L2E 4C9
Tel: (905) 357-4015 Fax: (905) 353-1105

EXECUTIVE SUMMARY

Hallex Environmental Ltd. was retained by Riverview Estates JV Inc. to conduct a Phase One Environmental Site Assessment (ESA) of a development property comprised of multiple parcels of land, denoted with municipal addresses 170, 178 & 184 Tanbark Road and a vacant lot on Warner Road in the community of St. David's in Niagara on the Lake, ON. Potentially contaminating activities, and contaminants or materials of potential concern, if revealed, were identified as 'Areas of Potential Environmental Concern' (APEC), and individually evaluated whether they were triggers for additional investigation via a Phase Two ESA. The Phase One ESA scope of investigation included:

Review of historical background information via:

- Fire Insurance Plans;
- Vernon's City Directory Search;
- EcoLog ERIS (Environmental Risk Information System);
- Examination of historical topographic and geological maps, and aerial photographic search and interpretation;

- Site reconnaissance: for observations of the site grounds, structures, and adjacent properties (Site photograph log);
- Ontario Oil, Gas & Salt Resources Library;
- Evaluation of information in terms of Potentially Contaminating Activities (PCA), and Areas of Potential Environmental Concern (APEC); and
- Formation of a preliminary Conceptual Site Model regarding potential contaminants, contaminant migration pathways, and human and/or ecological receptors.

FINDINGS

1. Designated Substances and Hazardous Materials Survey

Potential designated substances and hazardous materials (ie: lead based paints and asbestos containing materials: vinyl flooring, window mastic, drywall joint compound and roofing shingles) were observed in each residence at the time of site reconnaissance. **Hallex recommends a Designated Substances & Hazardous Materials survey be conducted prior to demolition in order to classify building materials for proper disposal purposes.**

2. Potentially Contaminating Activities

The Phase One ESA findings as identified from aerial photographs, Fire Insurance Plans, ERIS EcoLog, Vernon's City Directories and site reconnaissance revealed three (3) on-site historical activities that resulted in on-site 'Areas of Potential Environmental Concern' (APEC) at the study site with the potential to have impacted the study site's soil and/or groundwater.

- ***PCA-1/APEC-1: #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications.*** The vacant lot on Warner Road was documented as a former fruit orchard. The application of herbicides to the trees can result in accumulated levels of contaminants within the soil. This on-site use represents an onsite area of concern with target contaminants being Organochlorine Pesticides (OCP), Lead and Arsenic.
- ***PCA-2/APEC-2: #28 Gasoline and Associated Products Storage in Fixed Tanks –*** An Aboveground Storage Tank (AST) was observed in the basement at 178 Tanbark Road. The use of the AST for heating oil is considered an on-site PCA resulting in an on-site APEC. Target contaminants include Petroleum Hydrocarbons (PHCs F1-F4), Benzene, Toluene, Ethylbenzene & Xylene (BTEX) and Polycyclic Aromatic Hydrocarbons (PAHs).
- ***PCA-3/APEC-3: #28 Gasoline and Associated Products Storage in Fixed Tanks***- Fill pipes were noted during site reconnaissance at 170 Tanbark Road indicating the possibility of a heating oil tank having once been located at the site. Target contaminants include PHC, BTEX, and PAHs.

No other land uses within the study area (250 m radius of the site) revealed any Potentially Contaminating Activities resulting in on-site areas of potential environmental concern.

SOIL INVESTIGATION

Pre-consultation meeting notes from the Town of Niagara on the Lake identified a portion of the site historically in use as an orchard with the Ministry of the Environment, Conservation and Parks identifying potential for elevated Metals resulting from application of older pesticides. Subsequently, the Town requested a soils analysis within this area to address potential soil impacts relating to the historic application of pesticides, specifically, target contaminants Metals (Lead and Arsenic). Additionally, the soil investigation would focus on the exterior areas of the residential dwellings whereupon potential impact may be observed from the historic and more recent use of heating oil tanks as identified in each basement.

Twenty-one (21) test pits, TP-1 to TP-21 were advanced at the site on January 10th & 11th, 2019 with seventeen (17) samples submitted to Paracel Laboratories Ltd. for analysis of Metals (Arsenic & Lead), eight (8) for OC-Pesticides, four (4) for PHCs, BTEX, and PAHs and three (3) for grain size analysis. Results from all test pit samples met applicable Ministry of the Environment Site Condition Standards 2011 Table 3 for Residential Land Use in a Non-Potable Ground Water Situation, fine texture soil for all target contaminant groups.

CONCLUSIONS

The results from the Phase One Environmental Site Assessment revealed on-site potentially contaminating activities resulting in onsite areas of potential environmental concern. The subsequent soil investigation did not reveal any exceedances to target contaminants of concern therefore, Hallex considers the site suitable for development for residential purposes with no further Environmental Assessment work required as of January 11th, 2019.

LIST OF ACRONYMS

ACM	Asbestos Containing Materials
APEC	Area of Potential Environmental Concern
AST	Aboveground Storage Tank
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CSM	Conceptual Site Model
EC	Electrical Conductivity
EPA	Environmental Protection Act
ESA	Environmental Site Assessment
ERIS	Environmental Risk Information Services
FIP	Fire Insurance Plans
GPR	Ground Penetrating Radar
masl	Metres above sea level
mbgs	Metres below ground surface
MECP	Ministry of the Environment, Conservation & Parks
MOECC	Ministry of the Environment and Climate Change
NPCA	Niagara Peninsula Conservation Authority
NPRI	National Pollutant Release Inventory
MW	Monitoring Well
OC/OCP	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCA	Potentially Contaminating Activity
PCB	Polychlorinated Biphenyl
PCE	Perchloroethylene (tetrachloroethylene)
pH	Power of Hydrogen
PHC	Petroleum Hydrocarbons
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
RA	Risk Assessment
RSC	Record of Site Condition
SAR	Specific Absorption Rate
SCS	Site Condition Standard
SVOC	Semi-Volatile Organic Compounds
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

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1.0 INTRODUCTION

Hallex Environmental Ltd. was retained by Riverview Estates JV Inc. to conduct a Phase One Environmental Site Assessment (ESA) of a development property comprised of multiple parcels of land, denoted with municipal addresses 170, 178 & 184 Tanbark Road and a vacant lot on Warner Road in the community of St. David's in Niagara on the Lake, ON. Potentially contaminating activities, and contaminants or materials of potential concern, if revealed, were identified as 'Areas of Potential Environmental Concern' (APEC), and individually evaluated whether they were triggers for additional investigation via a Phase Two ESA.

A soil sampling investigation was conducted in conjunction with the Phase One ESA and also reported under this cover. The study site location is shown on Figure 1.

1.1 Phase One Property Information

Municipal address:	170, 178, 184 Tanbark Road and vacant lot on Warner Road, Niagara on the Lake, ON
Client(s):	Riverview Estates JV Inc.
UTM co-ordinates:	17T 653639.58 m E 4779799.38 m N
Elevation:	127.76 masl
Approx. site areas (total):	34.1 ha (341,000 m^2)

The site layout and adjacent land uses are shown on Figure 2.

1.2 Limitations and Exceptions of Report

Hallex Environmental Ltd. prepared this report for the account of: Riverview Estates JV Inc. The material in it reflects Hallex Environmental Ltd. best judgement based on the information discovered at the time of preparation, within the Phase One ESA scope of work. The investigative procedures and format of this report generally follow the guidelines established in: Part XV.1 of the Environmental Protection Act, per Ontario Regulations 153/04 and 511/09. Any information presented concerning materials at the site is based on information gathered during historical document search, site reconnaissance and the soil investigation only. There may be materials and/or other subsurface soil and/or groundwater conditions on-site, which are not represented by investigations described herein. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Hallex Environmental Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Declaration: Hallex Environmental Ltd., and its' Officers and Directors, declare no conflicting business or interests with the client or the subject property.

2.0 SCOPE OF INVESTIGATION

The objectives of the Phase One Environmental Site Assessment (ESA) were an investigation of the subject property and adjacent lands conducted in accordance with the regulations by or under the supervision of a qualified person to determine the likelihood that one or more contaminants have affected any land or water on, in or under the property within the definitions in the Environmental Protection Act, and scope of Ontario Regulation (O. Reg.) 511/09. Recognized environmental conditions, and Potentially Contaminating Activities (PCA) based on past or present uses, if revealed, were identified as 'Areas of Potential Environmental Concern' (APEC), and individually evaluated as to whether they were triggers for additional investigation via a Phase Two ESA.

2.1 Procedures

The Phase One ESA scope of investigation included:

Review of historical background information via:

- Fire Insurance Plans;
- Vernon's City Directory Search (Appendix A);
- EcoLog ERIS (Environmental Risk Information System) (Appendix B);
- Examination of historical topographic and geological maps, and aerial photographic search and interpretation (Appendix C);

- Site reconnaissance: for observations of the site grounds, structures, and adjacent properties (site photograph log – Appendix D);
- Ontario Oil, Gas & Salt Resources Library (Appendix E);
- Evaluation of information in terms of Potentially Contaminating Activities (PCA), and Areas of Potential Environmental Concern (APEC); and
- Formation of a preliminary Conceptual Site Model regarding potential contaminants, contaminant migration pathways, and human and/or ecological receptors.

3.0 RECORDS REVIEW

3.1 General

3.1.1 Phase One Study Area Determination

The results of reviewing environmental documents in addition to the site investigation revealed that it was not necessary to expand the search beyond a 250 m radius of the property.

3.1.2 First Developed Use Determination

The first developed land use, as determined through historical documents research and aerial photographs dating to 1934 was a mix of residential and agricultural land use

3.1.3 Current & Historical Site Use

Vernon's City Directories and Fire Insurance Plans (FIP) were researched at Brock University Special Collections Library on January 9th, 2019 with the following details provided:

Fire Insurance Plans

No Fire Insurance Plans (FIP) were available for the Town of Niagara on the Lake.

Vernon's City Directory Search

City Directory research revealed the study sites were not individually listed in the 2014 City Directory. Information concerning surrounding area land use was described as residential. The Vernon's City Directory results are provided in Appendix A.

3.1.4 Environmental Reports

There were no environmental reports provided to Hallex for review.

3.2 Environmental Source Information

The following agency databases and documents were reviewed where available and discussed further where necessary, for information regarding the site and the surrounding area to determine the presence of any activity or material of potential environmental concern.

- *National Pollutant Release Inventory;*
- *Waste Disposal Site Inventory/ Coal Gasification/Landfill Information/Waste management records;*
- *PCB Waste Storage Inventory;*
- *Ministry of Natural Resources*
- *EcoLog ERIS database*

The EcoLog ERIS report returned twelve (12) environmental records; zero (0) of which were affiliated with the study site and all twelve (12) from within 0.25 km of the site. Records include water well records and TSSA incidents, none of which results in creating an on-site area of potential environmental concern. The full EcoLog ERIS report located in Appendix B.

3.3 Physical Setting

3.3.1 Aerial Photographs

Aerial photographs were examined and aided in verifying the presence of buildings on-site and within the surrounding area. The following years were available for review: 1934, 1954, 1965, 1971, 1989, 2000, 2013, and 2018. Aerial photos from 1934 to 2018 show each individual site as either residential or agricultural/vacant land with surrounding land use being either agricultural or undeveloped. Aerial photos are located in Appendix C with brief summaries provided below.

Date	Comments
1934	The 1934 air photo depicts the majority of the site and surrounding properties as agricultural. A residence and barn are depicted at 178 Tanbark Road.
1954	No change was noted at 178 Tanbark Road however 184 Tanbark Road has been developed for residential purposes. The Warner Road lot still appears to be in use for agricultural – orchard purposes. Some residential development has occurred along Tanbark Road and Warner Road.
1965, 1971	No changes were noted to the Tanbark sites and the Warner Road property remains agricultural. The scale of the air photos were not small enough to note any other site specific details.
1989, 2000, 2013, 2018	The agricultural property on Warner Road no longer appears to be utilized for agricultural (orchard) purposes as evidenced from aerial photographs 2000 onwards, where the orchard trees are no longer present and grading and field grass growth is noted. The residential dwelling located at 184 Tanbark was demolished occurring sometime between the 2013 and 2018 aerial photo, where only the shed remains on-site. No changes to the other individual land parcels were observed.

3.3.2 Site Description

All site visits were conducted on January 2nd, 2019. A photo log highlights each site in addition to surrounding land uses and is provided in Appendix D with a brief summary below.

170 Tanbark Road was previously in use for residential purposes with the dwelling and two (2) car detached garage remaining on-site. The site contained a large grass covered area with mature trees surrounding its property boundaries. The site occupies approximately 4,134 m^2 of land.

178 Tanbark Road was also a former residential lot with a single storey dwelling and one (1) car detached garage. A smaller parcel of land, measuring approximately 1,753 m^2 also consisted of grassy areas and mature trees.

184 Tanbark Road was a much larger parcel of land occupying approximately 7,794 m^2 of land. The main residential structure had been demolished, however a treehouse and shed were still on-site.

The former orchard *lot on Warner Road*, now sits vacant. A small shed was located in the southwestern corner of the property with trees dotted along the eastern property boundary. The northern portion of the study site had some young tree saplings, a fence and a ditch between the property and Warner Road. The main part of the property was noted for having been tilled, likely

following the removal of the orchard trees. Some miscellaneous debris was found across the site. The site occupies an area of approximately 20,363 m^2 of land.

3.3.3 Topography, Hydrology, Geology

Topography:

Each parcel of land was relatively flat with elevations as follows:

170 Tanbark: 128 masl

178 Tanbark: 127 masl

184 Tanbark: 126-127 masl

Warner Road lot:127-129 masl

Hydrology:

Surface water drainage would be into municipal sewers along Warner Road and Tanbark Road. The overall groundwater flow direction for the area was interpreted to be north towards Lake Ontario and Four Mile Creek. The sites are noted to be within the Niagara on the Lake watershed and Four Mile Creek subwatershed.

Geology:

Review of maps: Quaternary Geology of Niagara-Welland (Ontario Geological Survey Map 2556), indicated that the native overburden underlying the subject sites was: glaciolacustrine sand and clay plains.

3.3.4 Water Bodies and Areas of Natural Significance

No water bodies and/or areas of natural significance are located on or adjacent to the study sites. Lake Ontario was located approximately 11.3 km north of the sites.

3.3.5 Well Records

A review of the Ontario Oil, Gas & Salt Resources Library and the Ministry of Environment, Conservation, and Parks (MECP) Water Well Records revealed no relevant data pertaining to the study sites. One (1) water well record was available from the MECP database within 0.25 km of the study site. The information from the water well record is provided in Appendix E.

3.4 Site Operating Records

There were no applicable site operating records available for review.

3.5 Interview

The current owner Mr. José Marques met Hallex staff member Nicole Metz on January 2nd, 2019 to gain access into the residential dwellings. No additional information pertaining to Potentially Contaminating Activities or Areas of Potential Environmental Concern associated with each of the land parcels was acquired from the conversation.

4.0 SITE RECONNAISSANCE

4.1 General Requirements

The site investigation took place on January 2nd, 2019. Hallex Environmental Ltd. staff member Nicole Metz, Environmental Technician, conducted the investigation.

4.2 Specific Observations at Phase One Properties

Hallex Environmental conducted reconnaissance of the site grounds on January 2nd, 2019, to identify Potentially Contaminating Activities (PCA) and Areas of Potential Environmental Concern (APEC) that could present the potential for contaminant sources available for migration via air, surface drainage, soil, and/or groundwater flow, to human and/or ecological receptors. Findings are summarized below and discussed further where necessary.

Development lot; Tanbark Road & Warner Road, Niagara on the Lake, ON	
Focus Items	**Location / Description**
Storage tanks (AST/UST)	One (1) AST was observed in the basement of 178 Tanbark Road. Tank information included 2007 install date and that it was a single walled tank. The tank and surrounding area appeared in good condition. There were no ASTs identified at 170 Tanbark Road although fill pipes and associated AST piping were present in the basement.
Wells	None observed.
Sewage disposal	Municipal services are provided at 170 & 178 Tanbark Rd, and it is expected that this service was also present at 184 Tanbark but has been capped off prior to demolition. For the vacant lot along Warner Road, services would be available for hook up.
Pits and lagoons	None observed.
Stained materials	None observed.
Stressed vegetation	None observed.
Fill	None observed.
Water & Wastewater	Municipal services are provided at 170 & 178 Tanbark Rd, and it is expected that this service was also present at 184 Tanbark but has been capped off prior to demolition. For the vacant lot along Warner Road, services would be available for hook up.
Watercourses, ditches, standing water	A ditch runs along the northern property boundary of the vacant lot along Warner Rd.
Equipment	None observed.
Debris	Some miscellaneous residential debris was found behind the dwellings and abandoned shed and within the middle part of the vacant lot.
Chemical storage	None observed.

Findings for the interior investigation of the two residential properties are summarized below.

170 & 178 Tanbark Road, Niagara on the Lake, ON		
Interior Focus Items	**Location & Description**	**Phase 2 ESA* or DSS** Recommended**
UFFI (urea formaldehyde foam insulation)	None observed	-
PCB's (polychlorinated biphenyl)	Possibly in fluorescent light ballasts within the kitchen at 178 Tanbark Road residence.	Catalogue for disposal.

170 & 178 Tanbark Road, Niagara on the Lake, ON		
Interior Focus Items	**Location & Description**	**Phase 2 ESA* or DSS** Recommended**
Ozone Depleting Substances	None observed	-
Designated Substances under Bill 208 of the Occupational Health and Safety Act, including:		
Acrylonitrile	None observed	-
Isocyanates	None observed	-
Arsenic	None observed	-
Lead (Paint)	The presence of lead paint could exist given the age of the original residential structures	DSS required prior to demolition.
Asbestos Containing Materials (ACM)	Potential ACM were noted including: vinyl flooring, window mastic, drywall joint compound and roofing shingles.	DSS required prior to renovation/ demolition only.
Mercury	None observed	-
Benzene	None observed	-
Silica	Building materials	-
Ethylene Oxide	None observed	-
Vinyl Chloride	None observed	-
Radon	Survey not conducted	N/A
Mould	None observed	-
Water damage	None observed	-
Noise	None observed	-
Electromagnetic field sources	None observed	-
Heating and cooling systems	Natural Gas & heating oil tank	-
Drains and sumps	None observed	-
Hydraulic equipment	None observed	-
Chemical storage	None observed	-
Odours	None observed	-
Other	Both dwellings had areas already partially demolished	-

* Phase 2 ESA = Phase 2 Environmental Site Assessment pertaining to soil and/or groundwater conditions,
** DSS = Designated Substances & Hazardous Materials Survey of building materials.

4.2.1 Asbestos Containing Materials (ACM)

Asbestos is classified as a Designated Substance under the Occupational Health and Safety Act. Potential ACM was suspected in the vinyl flooring, window mastic, drywall joint compound and roofing shingles. Hallex recommends suspected ACM materials should be sampled prior to any demolition of the building in order to classify building materials for proper disposal purposes.

4.2.2 Lead Paint

The potential presence of lead-based paints was documented at each residence given the age of construction. Lead is classified as a Designated Substance under Ontario Regulation 843 of the Occupational Health and Safety Act. Sampling and analysis of layered painted surfaces, as part of

a Designated Substance Survey, should take place before demolition to ensure the health and safety of workers, as under Ontario Regulation 519/92, and determine proper paint removal and disposal procedures if lead paint is confirmed.

5.0 REVIEW AND EVALUATION OF PHASE ONE

5.1 Current and Past Uses – Subject Site

The historic documents' search revealed the vacant lot on Warner Road was agricultural from the early 1930's until late 1990's and then vacant until present day. Municipal address 178 Tanbark Road appears developed for residential purposes from the early 1930's and 170 and 184 Tanbark from the mid 1950's. All three sites remained residential until present day.

5.2 Potentially Contaminating Activities – On Site

5.2.1 Historical Potentially Contaminating Activities

Three (3) historical potentially contaminating activities were identified at the study sites.

- ***PCA-1/APEC-1: #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications.*** The vacant lot on Warner Road was documented as a former fruit orchard. The application of herbicides to the trees can result in accumulated levels of contaminants within the soil. This on-site use represents an onsite area of concern with target contaminants being Organochlorine Pesticides (OCP), Lead and Arsenic.
- ***PCA-2/APEC-2: #28 Gasoline and Associated Products Storage in Fixed Tanks –*** An Aboveground Storage Tank (AST) was observed in the basement at 178 Tanbark Road. The use of the AST for heating oil is considered an on-site PCA resulting in an on-site APEC. Target contaminants include Petroleum Hydrocarbons (PHCs F1-F4), Benzene, Toluene, Ethylbenzene & Xylene (BTEX) and Polycyclic Aromatic Hydrocarbons (PAHs).
- ***PCA-3/APEC-3: #28 Gasoline and Associated Products Storage in Fixed Tanks***- Fill pipes were noted during site reconnaissance at 170 Tanbark Road indicating the possibility of a heating oil tank having once been located at the site. Target contaminants include PHC, BTEX, and PAHs.

5.2.2 Recent Potentially Contaminating Activities

No recent potentially contaminating activities were identified at the study sites.

5.3 Adjacent Land Uses

The surrounding land uses were a mix of residential, community, and commercial properties. Further description of surrounding property uses are presented below.

Description	Current Use	Past Use	Source used
Adjacent/ Surrounding Properties:	**North:** Residential **South:** Residential **East/West:** Residential, Community (Park, Firehall), commercial (greenhouse)	**North:** Residential **South:** Agricultural /Vacant **East/West:** Residential, agricultural	Historical document research, aerial photos and site investigation (January 2019).

5.3.1 Adjacent PCAs

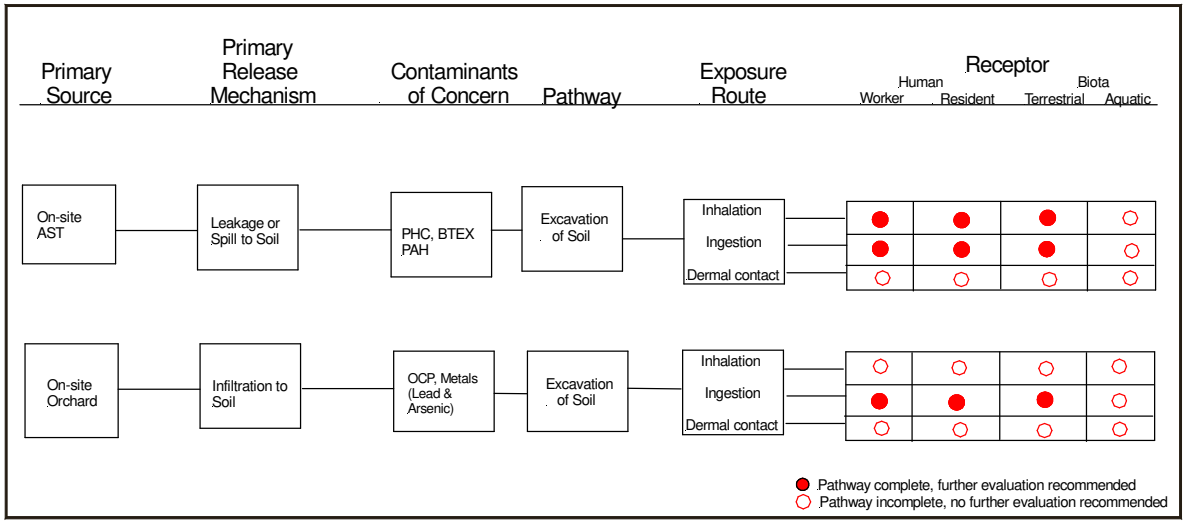
No adjacent potentially contaminating activities were identified with the potential to have impacted all site's soil and/or groundwater.

5.3.2 Within Study Area

Other land uses within the study area North, South, East, and West of the study sites did not exhibit visible items of concern that would constitute potentially contaminating activities to the subject sites regarding potential for impact to soil or groundwater.

6.0 PHASE ONE CONCEPTUAL SITE MODEL

The conceptual site model qualitatively considers the potential interaction of primary sources of environmental concern, with suspected contaminants of concern, and the pathway(s) and exposure route(s) to the receptors. Target contaminants of Metals (Lead & Arsenic), Organochlorine Pesticides (OCP), Petroleum Hydrocarbons (PHCs), Benzene Toluene Ethylbenzene Xylene (BTEX), and Polycyclic Aromatic Hydrocarbons (PAHs) were identified with potential migration pathways to human and/or biota receptors.



7.0 SOIL INVESTIGATION

Pre-consultation meeting notes from the Town of Niagara on the Lake identified a portion of the site historically in use as an orchard with the Ministry of the Environment, Conservation and Parks identifying potential for elevated Metals resulting from application of older pesticides. Subsequently, the Town requested a soils analysis within this area to address potential soil impacts relating to the historic application of pesticides, specifically, target contaminants Metals (Lead and Arsenic). Additionally, the soil investigation would focus on the exterior areas of the residential dwellings whereupon potential impact may be observed from the historic and more recent use of heating oil tanks as identified in each basement. The presence of contaminants in the soil, if detected, would determine the need for further sampling and analyses of soil and potentially groundwater to delineate the extent of impact, and to satisfy the requirements of O. Reg. 153/04, amended by O. Reg. 511/09.

7.1 Applicable Site Condition Standard

Site sensitivity analyses determined the Soil, Ground Water, and Sediment Standards (SGWSS) that would be applicable to the subject site as per O. Reg. 153/04, amended by O. Reg. 511/09. Site sensitivity is determined based on conformance or non-conformance with: shallow soil conditions, soil pH, proximity to an "Area of Natural Significance", or the presence of a stream or water body on-site or within 30 metres of the subject property, and the site and adjacent lands groundwater conditions being either potable or non-potable. A 'sensitive site' would require application of 'Full Depth Background Site Condition Standards'. The 'Full Depth Generic' standards that would apply to a 'non-sensitive site' are further determined based on potable or non-potable groundwater conditions and coarse or fine soil texture.

Development lot; Tanbark Road & Warner Road, Niagara on the Lake, ON– Site Sensitivity Analysis

The rationale for the selection of SGWSS criteria for the subject property included:

- Intended Property Use: Residential
- Soil Texture: fine
- Adjacent to a designated area of natural significance: No
- Within 30 m of a water body: No
- Non-Potable groundwater condition. The subject site is within an area supplied by municipal water. Groundwater was not investigated as part of this environmental assessment work.
- Depth to bedrock: not encountered between test-pit depths of 1.5 – 2.1 metres. Surrounding stratigraphic data suggests the depth to bedrock is 10.7 m.

Applicable Regulatory Criteria

O. Reg. 511/09 Ministry of the Environment, Conservation and Parks (MECP) Site Condition Standards Table 3 for Residential Land Use in a Non-Potable Ground Water Condition, fine textured soil, was applied to the subject site, based on conditions observed at the time of the site assessment.

7.2 Test Pit Excavation

Jay's Mini Excavating utilized a mini excavator for excavating the test pits for soil sampling purposes. Preparation for test pit sampling was initiated via requests for demarcation of underground utilities by Ontario One Call: for Bell, Cable, Hydro, and Natural Gas; and the Town of Niagara on the Lake and Regional Municipality of Niagara for Water and Sewer. All services were indicated as 'clear' for the designated work area.

7.3 Soil: Sampling

Twenty-one (21) test pits, TP-1 to TP-21 were advanced at the site on January 10th & 11th, 2019. Test pit locations are shown in Figure 4 and test pit logs are contained in Appendix F. Upper and lower samples were collected from each test pit. The upper samples were between depths of 0.2-1.2 m or 0.2-1.8 m and the lower samples were between 1.2-1.5 m or 1.8-2.1 m. Each sample was logged for colour, texture, structure, moisture, and visual and olfactory evidence of contamination. Additionally, textural identification of soil, through hand soil textural techniques, including the 'squeeze test' and 'ribbon test' were conducted during all soil logging and sampling events.

7.4 Soil: Field Screening

On January 11th & 16th, 2019 seventeen (17) samples were submitted to Paracel Laboratories Ltd. for analysis of Metals (Arsenic & Lead), eight (8) for OC-Pesticides, four (4) for PHCs, BTEX, and PAHs and three (3) for grain size analysis under chain of custody #43557, 47165 & 119195 Highlighted sample ID's below depict the samples chosen for submission to the lab.

Test Pit #/ Sample ID	Date Sampled	Depth (m)	Parameters Analyzed
TP-1A	01/10/2019	0.2 – 1.8	Grain Size
TP-1B		1.8 - 2.1	PHCs (F1-F4), BTEX & PAHs
TP-2A		0.2 – 1.8	
TP-2B		1.8 - 2.1	PHCs (F1-F4), BTEX & PAHs
TP-3A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-3B		1.2 - 1.5	
TP-4A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-4B		1.2 - 1.5	
TP-5A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-5B		1.2 - 1.5	

Test Pit #/ Sample ID	Date Sampled	Depth (m)	Parameters Analyzed
TP-6A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-6B		1.2 - 1.5	
TP-7A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-7B		1.2 - 1.5	
TP-8A		0.2 - 1.2	Metals (Arsenic & Lead), OC-Pesticides & Grain Size
TP-8B		1.2 - 1.5	
TP-9A	01/11/2019	0.2 – 1.8	
TP-9B		1.8 - 2.1	PHCs (F1-F4), BTEX & PAHs
TP-10A		0.2 – 1.8	
TP-10B		1.8 - 2.1	PHCs (F1-F4), BTEX & PAHs
TP-11A		0.2 - 1.2	Metals (Arsenic & Lead)
TP-11B		1.2 - 1.5	
TP-12A		0.2 - 1.2	Metals (Arsenic & Lead)
TP-12B		1.2 - 1.5	
TP-13A		0.2 - 1.2	Metals (Arsenic & Lead) & OC-Pesticides
TP-13B		1.2 - 1.5	
TP-14A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-14B		1.2 - 1.5	
TP-15A	01/11/2019	0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-15B		1.2 - 1.5	
TP-16A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-16B		1.2 - 1.5	
TP-17A		0.2 - 1.2	Metals (Arsenic & Lead) & Grain Size
TP-17B		1.2 - 1.5	
TP-18A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-18B		1.2 - 1.5	
TP-19A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-19B		1.2 - 1.5	
TP-20A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-20B		1.2 - 1.5	
TP-21A		0.2 - 1.2	Metals (Arsenic & Lead), & OC-Pesticides
TP-21B		1.2 - 1.5	

7.5 Overburden Stratigraphy

The general overburden stratigraphy for the sites as observed based on test-pits TP-1 to TP-21 consisted of:

Depth (avg.)	Description
0- 0.2 m	Grass and Organics

0.2- 1.2 m	Brown CLAY LOAM
1.2-1.8 m	Brown CLAY with some SILT

Bedrock was not encountered during the soil investigation

7.6 Soil Laboratory Results

Soil laboratory analytical data from the test pits was compared with MECP Site Condition Standards (2011) Table 3: for Residential Land Use in a Non-Potable Groundwater Situation, fine texture soil. All samples **met** applicable criteria for OCPs, Metals (Arsenic & Lead), PHCs (F1-F4), BTEX, and PAHs. Complete laboratory analytical reports are contained in Appendix B.

7.7 Quality Assurance and Quality Control Results

Hallex conducted Quality Assurance/Quality Control (QA/QC) measures throughout all stages of the assessment and remediation process. Laboratory QA/QC measures adhering to the Ministry of the Environment's "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 2010" are standard procedure for Paracel Laboratories (accredited to the ISO/IEC 17025 Standard by CALA) in order to ensure that the standards of quality were met within the expected level of confidence. Laboratory Analytical QA/QC results are conducted within the laboratory reports located in Appendix G.

8.0 CONCLUSIONS

Hallex Environmental Ltd. was retained by Riverview Estates JV Inc. to conduct a Phase One Environmental Site Assessment (ESA) of a development property comprised of multiple parcels of land, denoted with municipal addresses 170, 178 & 184 Tanbark Road and a vacant lot on Warner Road in the community of St. David's in Niagara on the Lake, ON. Potentially contaminating activities, and contaminants or materials of potential concern, if revealed, were identified as 'Areas of Potential Environmental Concern' (APEC), and individually evaluated whether they were triggers for additional investigation via a Phase Two ESA. The Phase One ESA scope of investigation included:

Review of historical background information via:

- Fire Insurance Plans;
- Vernon's City Directory Search;
- EcoLog ERIS (Environmental Risk Information System);
- Examination of historical topographic and geological maps, and aerial photographic search and interpretation;

- Site reconnaissance: for observations of the site grounds, structures, and adjacent properties (Site photograph log);
- Ontario Oil, Gas & Salt Resources Library;
- Evaluation of information in terms of Potentially Contaminating Activities (PCA), and Areas of Potential Environmental Concern (APEC); and
- Formation of a preliminary Conceptual Site Model regarding potential contaminants, contaminant migration pathways, and human and/or ecological receptors.

FINDINGS

1. ***Designated Substances and Hazardous Materials Survey***

Potential designated substances and hazardous materials (ie: lead based paints and asbestos containing materials: vinyl flooring, window mastic, drywall joint compound and roofing shingles) were observed in each residence at the time of site reconnaissance. **Hallex recommends a Designated Substances & Hazardous Materials survey be conducted prior to demolition in order to classify building materials for proper disposal purposes.**

2. ***Potentially Contaminating Activities***

The Phase One ESA findings as identified from aerial photographs, Fire Insurance Plans, ERIS EcoLog, Vernon's City Directories and site reconnaissance revealed three (3) on-site historical activities that resulted in on-site 'Areas of Potential Environmental Concern' (APEC) at the study site with the potential to have impacted the study site's soil and/or groundwater.

- ***PCA-1/APEC-1: #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications.*** The vacant lot on Warner Road was documented as a former fruit orchard. The application of herbicides to the trees can result in accumulated levels of contaminants within the soil. This on-site use represents an onsite area of concern with target contaminants being Organochlorine Pesticides (OCP), Lead and Arsenic.
- ***PCA-2/APEC-2: #28 Gasoline and Associated Products Storage in Fixed Tanks –*** An Aboveground Storage Tank (AST) was observed in the basement at 178 Tanbark Road. The use of the AST for heating oil is considered an on-site PCA resulting in an on-site APEC. Target contaminants include Petroleum Hydrocarbons (PHCs F1-F4), Benzene, Toluene, Ethylbenzene & Xylene (BTEX) and Polycyclic Aromatic Hydrocarbons (PAHs).
- ***PCA-3/APEC-3: #28 Gasoline and Associated Products Storage in Fixed Tanks***- Fill pipes were noted during site reconnaissance at 170 Tanbark Road indicating the possibility of a heating oil tank having once been located at the site. Target contaminants include PHC, BTEX, and PAHs.

No other land uses within the study area (250 m radius of the site) revealed any Potentially Contaminating Activities resulting in on-site areas of potential environmental concern.

SOIL INVESTIGATION

Pre-consultation meeting notes from the Town of Niagara on the Lake identified a portion of the site historically in use as an orchard with the Ministry of the Environment, Conservation and Parks identifying potential for elevated Metals resulting from application of older pesticides. Subsequently, the Town requested a soils analysis within this area to address potential soil impacts relating to the historic application of pesticides, specifically, target contaminants Metals (Lead and Arsenic). Additionally, the soil investigation would focus on the exterior areas of the residential dwellings whereupon potential impact may be observed from the historic and more recent use of heating oil tanks as identified in each basement.

Twenty-one (21) test pits, TP-1 to TP-21 were advanced at the site on January 10th & 11th, 2019 with seventeen (17) samples submitted to Paracel Laboratories Ltd. for analysis of Metals (Arsenic & Lead), eight (8) for OC-Pesticides, four (4) for PHCs, BTEX, and PAHs and three (3) for grain size analysis. Results from all test pit samples met applicable Ministry of the Environment Site Condition Standards 2011 Table 3 for Residential Land Use in a Non-Potable Ground Water Situation, fine texture soil for all target contaminant groups.

CONCLUSIONS

The results from the Phase One Environmental Site Assessment revealed on-site potentially contaminating activities resulting in onsite areas of potential environmental concern. The subsequent soil investigation did not reveal any exceedances to target contaminants of concern therefore, Hallex considers the site suitable for development for residential purposes with no further Environmental Assessment work required as of January 11th, 2019.

9.0 AUTHOR

Hallex Environmental Ltd. has conducted this Phase One Environmental Site Assessment as permitted by Hallex Certificate of Authorization (#90252). The following employees authored the report:

Nicole Metz - Ms. Nicole Metz, ETPD, ERPC, was the Environmental Technician for the project with over 4 years of experience in the environmental consulting field. Some projects Mrs. Metz have worked on included: Phase One & Two Environmental Site Assessments, water sampling, Records of Site Condition Filing, Environmental Compliance Approvals, National Pollutant Release Inventory, Hazardous Waste Information Network training, Designated Substances and Hazardous Materials Surveys, Site Investigations, and Remediation Studies.

Jade Anema - Ms. Jade Anema, MBA, B. Eng, CAPM, E.I.T, was the Project Coordinator for the project. Ms. Anema conducted the research for this report. Jade Anema recently graduated with a Bachelor of Environmental Engineering and has two years of environmental project experience including work on Phase One & Two Environmental Site Assessments, Records of Site Condition Filing, Environmental Compliance Approvals, Designated Substances and Hazardous Materials Surveys, Site Investigations, and Remediation Studies.

Jodie Glasier - Mrs. Jodie Glasier, B.A.(Hons), PD-EMA, M.MM, EP, was the Project Manager for the Phase One ESA. Jodie Glasier has ten + years of diverse environmental project experience including work on Phase One & Two Environmental Site Assessments, Records of Site Condition Filing, Environmental Compliance Approvals, Designated Substances and Hazardous Materials Surveys, Site Investigations, Remediation Studies, and Environmental Planning.

Jim Halucha - Mr. Jim Halucha, M.A.Sc., MBA, P.Eng., PQS, PMP, is a Professional Engineer registered with the Professional Engineers of Ontario and has twenty plus years of experience on commercial, institutional and municipal projects. In addition, Jim has more than ten years of project management experience and holds a Project Management Professional (PMP) designation through the Project Management Institute along with associate management courses and continuing education requirements.

10.0 REFERENCES

The following reports, documents and databases were reviewed for the completion of this Phase One ESA.

- EcoLog ERIS
- Brock University Map Library
- Town of Niagara on the Lake Historical Society
- City of Niagara Falls Vernon's City Directories (with Niagara on the Lake excerpts)
- Brock University Special Collections Library
- National Pollutant Release Inventory (NPRI) database www.ec.gc.ca.
- Ontario Inventory of PCB Storage Site October 1991, Ministry of the Environment, January 1992.
- Ontario Oil, Gas, and Salt Resources Library, www.ogsrlibrary.com.
- Waste Disposal Site Inventory, Ministry of the Environment, 1991.

FIGURES

0 m 800 m 1600 m 4000 m
400 m 1200 m 2000 m

HALLEX ENVIRONMENTAL LTD.

Legend

Study Site

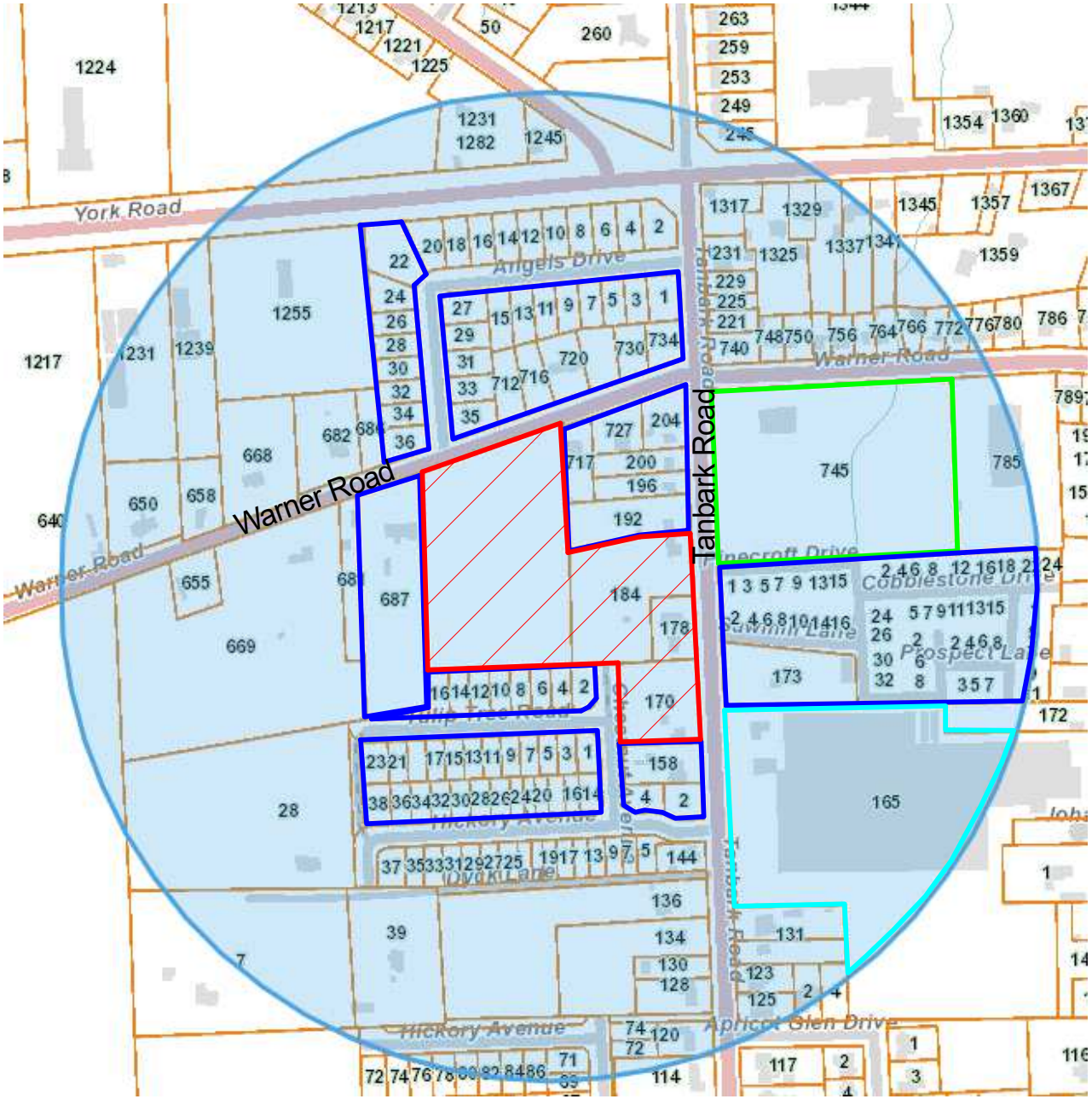
Client
Riverview Estates JV Inc.

Project
Phase One ESA & Soil Sampling of: Development lot; Tanbark Rd. & Warner Rd., Niagara on the Lake, ON

Figure Name
Site Location

Project E-18-54-1
Date January 2019
Drafted: J. Anema
Reviewed:JG

Figure 1



HALLEX ENVIRONMENTAL LTD.

Legend

- Phase One Property
- Residential Land Use
- Commercial Land Use
- Community Land Use

Client
Riverview Estates JV Inc.

Project
Phase One ESA & Soil Sampling of: Development lot; Tanbark Rd. & Warner Rd., Niagara on the Lake, ON

Figure Name
Site Location

Project E-18-54-1
Date January 2019
Drafted: J. Anema
Reviewed: JG

Figure 2

HALLEX ENVIRONMENTAL LTD.

Legend

- Phase One Property
- PCA-# /APEC-#

APEC-1: Pesticide Use
APEC-2: Heating Oil AST
APEC-3: Heating Oil AST

Client
Riverview Estates JV Inc.

Project
Phase One ESA & Soil Sampling of: Development lot Tanbark Rd. & Warner Rd., Niagara on the Lake, ON

Figure Name
Potentially Contaminating Activities and Areas of Potential Environmental Concern

Project	E-18-54-1
Date	January 2019
Drafted:	J. Anema
Reviewed:	

Figure 3

HALLEX ENVIRONMENTAL LTD.

Legend

- Study Site
- Test Pit Location

Client
Riverview Estates JV Inc.

Project
Phase One ESA & Soil Sampling of: Development lot; Tanbark Rd. & Warner Rd., Niagara on the Lake, ON

Figure Name
Test Pit Locations

Project E-18-54-1
Date January 2019
Drafted: N. Metz
Reviewed: JG

Figure 4

Appendix A:

Vernon's City Directory

Vernon's City Directory Search

Date	Location Description	Address	Property Name
2014	Tanbark Road		
		158	Not Listed
		165	Not Listed
		170	Not Listed
		178	Not Listed
		173	Residential
		184	Not Listed
		192	No Return
		196	Residential
		200-204	Residential
	Warner Road		
		668-730	Residential
		687	Residential
		717-727	Not Listed

Highlighted properties indicate study site.

Vernon's were available for 2014 and 2006/07, but were not listed by address in 2006/07.

Appendix B:

EcoLog ERIS

ENVIRONMENTAL RISK INFORMATION SERVICES

DATABASE REPORT

Project Property:	*Phase One ESA - Vacant lot, St. David's, ON* *Warner Road* *Niagara-on-the-Lake ON*
Project No:	*E-18-54-1*
Report Type:	*Standard Report*
Order No:	*20181219153*
Requested by:	*Hallex Environmental Ltd.*
Date Completed:	*December 31, 2018*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Table of Contents

Executive Summary

Property Information:

Project Property: *Phase One ESA - Vacant lot, St. David's, ON*
Warner Road Niagara-on-the-Lake ON

Project No: *E-18-54-1*

Coordinates:

Latitude:	*43.155348*
Longitude:	*-79.1103*
UTM Northing:	*4,779,799.38*
UTM Easting:	*653,639.58*
UTM Zone:	*UTM Zone 17T*

Elevation: *419 FT*
127.76 M

Order Information:

Order No: *20181219153*
Date Requested: *December 19, 2018*
Requested by: *Hallex Environmental Ltd.*
Report Type: *Standard Report*

Historical/Products:

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Within 0.25 km	Total
AAGR	*Abandoned Aggregate Inventory*	Y	0	0	0
AGR	*Aggregate Inventory*	Y	0	0	0
AMIS	*Abandoned Mine Information System*	Y	0	0	0
ANDR	*Anderson's Waste Disposal Sites*	Y	0	0	0
AUWR	*Automobile Wrecking & Supplies*	Y	0	0	0
BORE	*Borehole*	Y	0	0	0
CA	*Certificates of Approval*	Y	0	2	2
CFOT	*Commercial Fuel Oil Tanks*	Y	0	0	0
CHEM	*Chemical Register*	Y	0	0	0
CNG	*Compressed Natural Gas Stations*	Y	0	0	0
COAL	*Inventory of Coal Gasification Plants and Coal Tar Sites*	Y	0	0	0
CONV	*Compliance and Convictions*	Y	0	0	0
CPU	*Certificates of Property Use*	Y	0	0	0
DRL	*Drill Hole Database*	Y	0	0	0
DRYCLEANERS	*Dry Cleaning Facilities*	Y	0	0	0
EASR	*Environmental Activity and Sector Registry*	Y	0	0	0
EBR	*Environmental Registry*	Y	0	1	1
ECA	*Environmental Compliance Approval*	Y	0	3	3
EEM	*Environmental Effects Monitoring*	Y	0	0	0
EHS	*ERIS Historical Searches*	Y	0	0	0
EIIS	*Environmental Issues Inventory System*	Y	0	0	0
EMHE	*Emergency Management Historical Event*	Y	0	0	0
EXP	*List of TSSA Expired Facilities*	Y	0	0	0
FCON	*Federal Convictions*	Y	0	0	0
FCS	*Contaminated Sites on Federal Land*	Y	0	0	0
FOFT	*Fisheries & Oceans Fuel Tanks*	Y	0	0	0
FST	*Fuel Storage Tank*	Y	0	0	0
FSTH	*Fuel Storage Tank - Historic*	Y	0	0	0
GEN	*Ontario Regulation 347 Waste Generators Summary*	Y	0	0	0
GHG	*Greenhouse Gas Emissions from Large Facilities*	Y	0	0	0
HINC	*TSSA Historic Incidents*	Y	0	0	0
IAFT	*Indian & Northern Affairs Fuel Tanks*	Y	0	0	0
INC	*TSSA Incidents*	Y	0	0	0
LIMO	*Landfill Inventory Management Ontario*	Y	0	0	0
MINE	*Canadian Mine Locations*	Y	0	0	0
MISA PENALTY	*Environmental Penalty Annual Report*	Y	0	0	0

Database	Name	Searched	Project Property	Within 0.25 km	Total
MNR	Mineral Occurrences	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defense & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defense & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBI	National Energy Board Pipeline Incidents	Y	0	0	0
NEBW	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGW	Oil and Gas Wells	Y	0	0	0
OOGW	Ontario Oil and Gas Wells	Y	0	0	0
OPCB	Inventory of PCB Storage Sites	Y	0	0	0
ORD	Orders	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	0	0
PINC	TSSA Pipeline Incidents	Y	0	3	3
PRT	Private and Retail Fuel Storage Tanks	Y	0	0	0
PTTW	Permit to Take Water	Y	0	0	0
REC	Ontario Regulation 347 Waste Receivers Summary	Y	0	0	0
RSC	Record of Site Condition	Y	0	0	0
RST	Retail Fuel Storage Tanks	Y	0	0	0
SCT	Scott's Manufacturing Directory	Y	0	0	0
SPL	Ontario Spills	Y	0	2	2
SRDS	Wastewater Discharger Registration Database	Y	0	0	0
TANK	Anderson's Storage Tanks	Y	0	0	0
TCFT	Transport Canada Fuel Storage Tanks	Y	0	0	0
VAR	TSSA Variances for Abandonment of Underground Storage Tanks	Y	0	0	0
WDS	Waste Disposal Sites - MOE CA Inventory	Y	0	0	0
WDSH	Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	0	0	0
WWIS	Water Well Information System	Y	0	1	1
	Total:		0	12	12

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
1	PINC		192 TANBARK RD, NIAGARA-ON-THE-LAKE ON	NE/111.0	-2.17	15
1	SPL	Enbridge Gas Distribution Inc.	192 Tanbark Rd. Niagara-on-the-Lake ON	NE/111.0	-2.17	15
2	CA	Angelo Fiorucci	720 Warner Rd Niagara-on-the-Lake ON	N/177.5	-2.93	16
2	ECA	Angelo Fiorucci	720 Warner Rd Niagara-on-the-Lake ON L0S 1J0	N/177.5	-2.93	16
3	PINC		34 ANGELS DRIVE, NIAGARA-ON-THE-LAKE ON	NW/177.8	-2.93	16
3	SPL	Enbridge Gas Distribution Inc.	34 Angels Drive Niagara-on-the-Lake ON	NW/177.8	-2.93	17
4	WWIS		lot 95 ON ***Well ID:*** 3801057	NE/182.9	-2.93	17
5	CA	Arber Developments Ltd.	150 Tanbark Rd Niagara-on-the-Lake ON	SE/216.6	0.93	19
5	ECA	Arber Developments Ltd.	150 Tanbark Rd Niagara-on-the-Lake ON L0S 1E2	SE/216.6	0.93	20
5	ECA	Arber Developments Ltd.	150 Tanbark Rd Niagara-on-the-Lake ON L0S 1E2	SE/216.6	0.93	20
6	PINC		33 HICKORY AVE, NIAGARA ON THE LAKE ON	SSW/221.5	4.39	20
7	EBR	Scott Street Greenhouses Limited	165 Tanbark Road Niagara-on-the-Lake Regional Municipality of Niagara L0S 1P0 TOWN OF NIAGARA-ON-THE-LAKE	ESE/250.0	-0.94	21

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
			ON			

Executive Summary: Summary By Data Source

CA - Certificates of Approval

A search of the CA database, dated 1985-Oct 30, 2011* has found that there are 2 CA site(s) within approximately 0.25 kilometers of the project property.

Equal/Higher Elevation	Address	Direction	Distance (m)	Map Key
Arber Developments Ltd.	150 Tanbark Rd Niagara-on-the-Lake ON	SE	216.64	5

Lower Elevation	Address	Direction	Distance (m)	Map Key
Angelo Fiorucci	720 Warner Rd Niagara-on-the-Lake ON	N	177.46	2

EBR - Environmental Registry

A search of the EBR database, dated 1994-Oct 31, 2018 has found that there are 1 EBR site(s) within approximately 0.25 kilometers of the project property.

Lower Elevation	Address	Direction	Distance (m)	Map Key
Scott Street Greenhouses Limited	165 Tanbark Road Niagara-on-the-Lake Regional Municipality of Niagara L0S 1P0 TOWN OF NIAGARA-ON-THE-LAKE ON	ESE	250.00	7

ECA - Environmental Compliance Approval

A search of the ECA database, dated Oct 2011-Nov 30, 2018 has found that there are 3 ECA site(s) within approximately 0.25 kilometers of the project property.

Equal/Higher Elevation	Address	Direction	Distance (m)	Map Key
Arber Developments Ltd.	150 Tanbark Rd Niagara-on-the-Lake ON L0S 1E2	SE	216.64	5
Arber Developments Ltd.	150 Tanbark Rd Niagara-on-the-Lake ON L0S 1E2	SE	216.64	5

Lower Elevation	Address	Direction	Distance (m)	Map Key
Angelo Fiorucci	720 Warner Rd Niagara-on-the-Lake ON L0S 1J0	N	177.46	2

PINC - TSSA Pipeline Incidents

A search of the PINC database, dated Feb 28, 2017 has found that there are 3 PINC site(s) within approximately 0.25 kilometers of the project property.

Equal/Higher Elevation	Address	Direction	Distance (m)	Map Key
	33 HICKORY AVE, NIAGARA ON THE LAKE ON	SSW	221.53	6

Lower Elevation	Address	Direction	Distance (m)	Map Key
	192 TANBARK RD, NIAGARA-ON-THE-LAKE ON	NE	110.95	1
	34 ANGELS DRIVE, NIAGARA-ON-THE-LAKE ON	NW	177.80	3

SPL - Ontario Spills

A search of the SPL database, dated 1988-Jul 2018 has found that there are 2 SPL site(s) within approximately 0.25 kilometers of the project property.

Lower Elevation	Address	Direction	Distance (m)	Map Key
Enbridge Gas Distribution Inc.	192 Tanbark Rd. Niagara-on-the-Lake ON	NE	110.95	1
Enbridge Gas Distribution Inc.	34 Angels Drive Niagara-on-the-Lake ON	NW	177.80	3

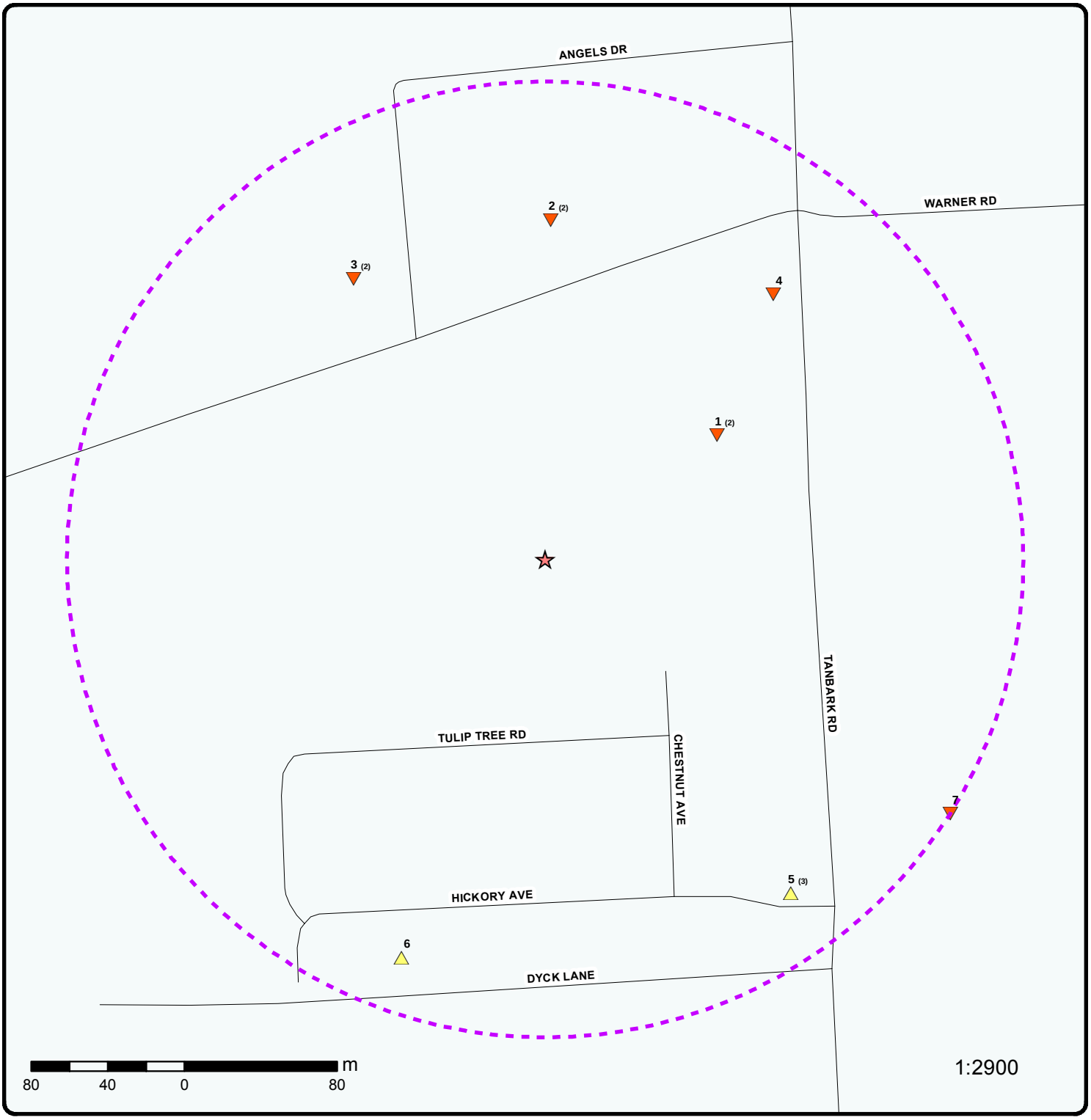
WWIS - Water Well Information System

A search of the WWIS database, dated Dec 31, 2017 has found that there are 1 WWIS site(s) within approximately 0.25 kilometers of the project property.

Lower Elevation	Address	Direction	Distance (m)	Map Key

lot 95 ON	NE	182.90	4

Well ID: 3801057



Map : 0.25 Kilometer Radius

Order No: 20181219153

Address: Warner Road, Niagara-on-the-Lake, ON

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

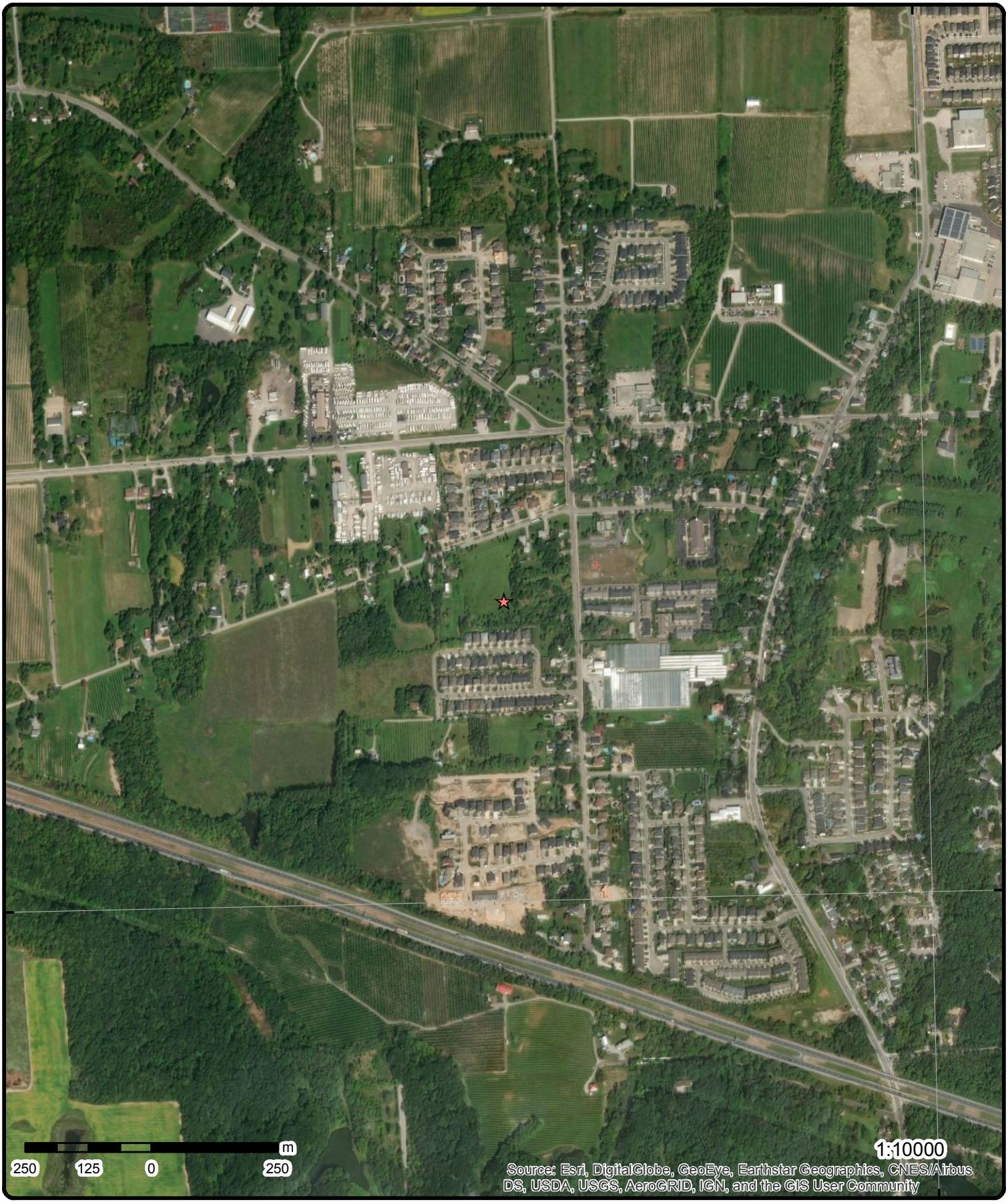
- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation

- Expressway
- Principal Highway
- Secondary Highway
- Major Road
- Local road
- Trail
- Proposed Road
- Ferry Route/Ice Road

- Industrial and Resource - Regions
- Main Line
- Sidetrack
- Transit Line
- Abandoned Line

- National Park
- Provincial or Territorial Park
- Other Park
- Golf Course or Driving Range
- Park or Sports Field
- Other Recreation Area

79°6'W



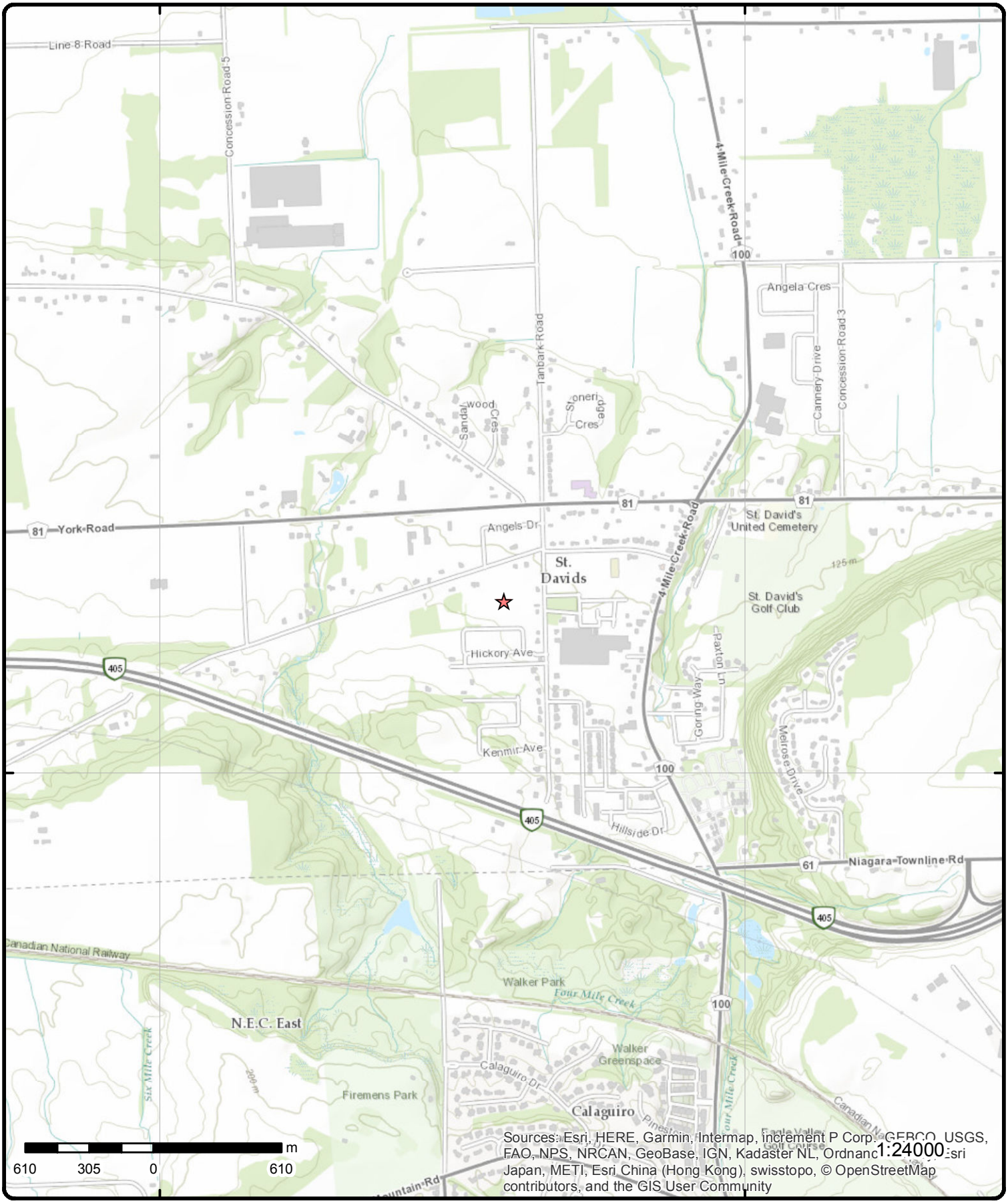
Aerial (2017)

Address: Warner Road, Niagara-on-the-Lake, ON

Source: ESRI World Imagery

Order No: 20181219153

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



Topographic Map

Address: Warner Road, Niagara-on-the-Lake, ON

Source: ESRI World Topographic Map

Order No: 20181219153

ENVIRONMENTAL RISK INFORMATION SERVICES

Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
1	1 of 2	NE/111.0	125.6 / -2.17	192 TANBARK RD, NIAGARA-ON-THE-LAKE ON	PINC

Incident ID:		**Health Impact:**	
Incident No:	1250710	**Environment Impact:**	
Type:	FS-Pipeline Incident	**Property Damage:**	Yes
Status Code:	Pipeline Damage Reason Est	**Service Interupt:**	
Fuel Occurrence Tp:		**Enforce Policy:**	Yes
Fuel Type:		**Public Relation:**	
Tank Status:	RC Established	**Pipeline System:**	
Task No:	4657692	**Depth:**	
Spills Action Centre:		**Pipe Material:**	
Method Details:	E-mail	**PSIG:**	
Fuel Category:	Natural Gas	**Attribute Category:**	FS-Perform P-line Inc Invest
Date of Occurrence:		**Regualtor Location:**	
Occurrence Start Date:	2013/09/23		
Operation Type:			
Pipeline Type:			
Regulator Type:			
Summary:	192 TANBARK RD, NIAGARA-ON-THE-LAKE - PIPELINE HIT - 4"		
Reported By:	Wayne Nelson - Enbridge Gas		
Affiliation:			
Occurrence Desc:			
Damage Reason:	Excavation practices not sufficient		
Notes:			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
1	2 of 2	NE/111.0	125.6 / -2.17	Enbridge Gas Distribution Inc. 192 Tanbark Rd. Niagara-on-the-Lake ON	SPL

Ref No:	6431-9BQRSN	**Discharger Report:**	
Site No:		**Material Group:**	
Incident Dt:	2013/09/20	**Client Type:**	
Year:		**Sector Type:**	Pipeline/Components
Incident Cause:	Leak/Break	**Source Type:**	
Incident Event:		**Nearest Watercourse:**	
Contaminant Code:	35	**Site Name:**	192 Tanbark Rd.<UNOFFICIAL>
Contaminant Name:	NATURAL GAS (METHANE)	**Site Address:**	192 Tanbark Rd.
Contaminant Limit 1:		**Site District Office:**	
Contam Limit Freq 1:		**Site County/District:**	
Contaminant UN No 1:		**Site Postal Code:**	
Contaminant Qty:	0 other - see incident description	**Site Region:**	
Environment Impact:	Confirmed	**Site Municipality:**	Niagara-on-the-Lake
Nature of Impact:	Air Pollution	**Site Lot:**	
Receiving Medium:		**Site Conc:**	
Receiving Env:		**Northing:**	
Health/Env Conseq:		**Easting:**	
MOE Response:	Not MOE mandate	**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Geo Ref Meth:**	
MOE Reported Dt:	2013/09/20	**Site Map Datum:**	
Dt Document Closed:	2014/01/15		
Agency Involved:			
SAC Action Class:	TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Incident Reason: Operator/Human Error
Incident Summary: TSSA FSB: 4 " plastic linestrike

---

2 | **1 of 2** | **N/177.5** | **124.8 / -2.93** | **Angelo Fiorucci**
720 Warner Rd
Niagara-on-the-Lake ON | **CA**

Certificate #: 7606-8J2HJ2
Application Year: 2011
Issue Date: 6/30/2011
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

---

2 | **2 of 2** | **N/177.5** | **124.8 / -2.93** | **Angelo Fiorucci**
720 Warner Rd
Niagara-on-the-Lake ON L0S 1J0 | **ECA**

Approval No: 7606-8J2HJ2
Approval Date: 2011-06-30
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: Niagara Peninsula
MOE District: Niagara
City: Niagara-on-the-Lake
Longitude: -79.1102899999999
Latitude: 43.157272
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: 720 Warner Rd
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/2995-8HMHDT-14.pdf

---

3 | **1 of 2** | **NW/177.8** | **124.8 / -2.93** | **34 ANGELS DRIVE, NIAGARA-ON-THE-LAKE ON** | **PINC**

Incident ID:
Incident No: 1978718
Type: FS-Pipeline Incident
Status Code: Pipeline Damage Reason Est
Fuel Occurrence Tp:
Fuel Type:
Tank Status: RC Established
Task No: 6442090
Spills Action Centre:
Method Details: E-mail
Fuel Category: Natural Gas
Date of Occurrence:
Occurrence Start Date: 2016/11/18
Operation Type:
Pipeline Type:
Regulator Type:
Health Impact:
Environment Impact:
Property Damage: No
Service Interupt:
Enforce Policy: Yes
Public Relation:
Pipeline System:
Depth:
Pipe Material:
PSIG:
Attribute Category: FS-Perform P-line Inc Invest
Regualtor Location:
Summary: 34 ANGELS DRIVE, NIAGARA-ON-THE-LAKE - PIPELINE HIT - 1 ¼"
Reported By: Rob Rush - ENBRIDGE
Affiliation:

Occurrence Desc:
Damage Reason: Excavation practices not sufficient
Notes:

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3 *2 of 2* *NW/177.8* *124.8 / -2.93* **Enbridge Gas Distribution Inc.**
34 Angels Drive
Niagara-on-the-Lake ON **SPL**

Ref No:	0380-AFSMKZ	**Discharger Report:**	
Site No:	NA	**Material Group:**	
Incident Dt:	2016/11/17	**Client Type:**	
Year:		**Sector Type:**	Miscellaneous Communal
Incident Cause:		**Source Type:**	
Incident Event:	Leak/Break	**Nearest Watercourse:**	
Contaminant Code:	35	**Site Name:**	residential<UNOFFICIAL>
Contaminant Name:	NATURAL GAS (METHANE)	**Site Address:**	34 Angels Drive
Contaminant Limit 1:		**Site District Office:**	
Contam Limit Freq 1:		**Site County/District:**	
Contaminant UN No 1:		**Site Postal Code:**	
Contaminant Qty:	0 other - see incident description	**Site Region:**	
Environment Impact:		**Site Municipality:**	Niagara-on-the-Lake
Nature of Impact:		**Site Lot:**	
Receiving Medium:		**Site Conc:**	
Receiving Env:	Air	**Northing:**	
Health/Env Conseq:		**Easting:**	
MOE Response:	No	**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Geo Ref Meth:**	
MOE Reported Dt:	2016/11/17	**Site Map Datum:**	
Dt Document Closed:			
Agency Involved:			
SAC Action Class:	TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill		
Incident Reason:	Operator/Human Error		
Incident Summary:	TSSA - Enbridge, 1 1/4" plastic service main line damaged, made safe		

---

4 *1 of 1* *NE/182.9* *124.8 / -2.93* **lot 95**
ON **WWIS**

Well ID:	3801057	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	12/11/1951
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	4208
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	NIAGARA (LINCOLN)
Elevation (m):		**Municipality:**	NIAGARA-ON-THE-LAKE TOWN (NIAGARA TWP)
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	095
Well Depth:		**Concession:**	
Overburden/Bedrock:		**Concession Name:**	
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10238841	**Elevation:**	124.94
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:	o	**East83:**	653758.9
Code OB Desc:	Overburden	**Org CS:**	
Open Hole:		**North83:**	4779938
Cluster Kind:		**UTMRC:**	9
Date Completed:	04-DEC-51	**UTMRC Desc:**	unknown UTM
Remarks:		**Location Method:**	p9
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931739882
Layer:	3
Color:	
General Color:	
Mat1:	09
Most Common Material:	MEDIUM SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	45
Formation End Depth:	83
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931739880
Layer:	1
Color:	
General Color:	
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0
Formation End Depth:	30
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931739881
Layer:	2
Color:	7
General Color:	RED
Mat1:	14
Most Common Material:	HARDPAN
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	

Formation Top Depth:	30
Formation End Depth:	45
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	963801057
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10787411
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930404503
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	83
Casing Diameter:	6
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	993801057
Pump Set At:	
Static Level:	22
Final Level After Pumping:	70
Recommended Pump Depth:	
Pumping Rate:	10
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	2
Pumping Duration HR:	1
Pumping Duration MIN:	0
Flowing:	N

Water Details

Water ID:	933706801
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	83
Water Found Depth UOM:	ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
5	1 of 3	SE/216.6	128.7 / 0.93	Arber Developments Ltd. 150 Tanbark Rd	CA

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
				Niagara-on-the-Lake ON	

Certificate #: 5626-7GCPKB
Application Year: 2008
Issue Date: 7/10/2008
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

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5 | **2 of 3** | **SE/216.6** | **128.7 / 0.93** | **Arber Developments Ltd.**
150 Tanbark Rd
Niagara-on-the-Lake ON L0S 1E2 | **ECA**

Approval No: 6007-7GCQ5V
Approval Date: 2008-07-10
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: Niagara Peninsula
Approval Type: ECA-Municipal Drinking Water Systems
Project Type: Municipal Drinking Water Systems
Address: 150 Tanbark Rd
Full Address:
Full PDF Link:
MOE District: Niagara
City:
Longitude: -79.11036
Latitude: 43.154118
Geometry X:
Geometry Y:

---

5 | **3 of 3** | **SE/216.6** | **128.7 / 0.93** | **Arber Developments Ltd.**
150 Tanbark Rd
Niagara-on-the-Lake ON L0S 1E2 | **ECA**

Approval No: 5626-7GCPKB
Approval Date: 2008-07-10
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: Niagara Peninsula
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: 150 Tanbark Rd
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/2356-7G8QCV-14.pdf
MOE District: Niagara
City: Niagara-on-the-Lake
Longitude: -79.11036
Latitude: 43.154118
Geometry X:
Geometry Y:

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6 | **1 of 1** | **SSW/221.5** | **132.1 / 4.39** | **33 HICKORY AVE, NIAGARA ON THE LAKE ON** | **PINC**

Incident ID:
Incident No: 1143248
Type: FS-Pipeline Incident
Status Code: Pipeline Damage Reason Est
Fuel Occurrence Tp:
Fuel Type:
Tank Status: RC Established
Task No: 4544859
Spills Action Centre:
Health Impact:
Environment Impact:
Property Damage: Yes
Service Interupt:
Enforce Policy: Yes
Public Relation:
Pipeline System:
Depth:
Pipe Material:

Method Details:	E-mail	**PSIG:**	
Fuel Category:	Natural Gas	**Attribute Category:**	FS-Perform P-line Inc Invest
Date of Occurrence:		**Regualtor Location:**	
Occurrence Start Date:	2013/12/03		
Operation Type:			
Pipeline Type:			
Regulator Type:			

Summary: 33 HICKORY AVE, NIAGARA ON THE LAKE - 1/2" PIPELINE HIT
Reported By: jim.gilmore@enbridge.com
Affiliation:
Occurrence Desc:
Damage Reason: No notification made to the one call center
Notes:

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7 | **1 of 1** | **ESE/250.0** | **126.8 / -0.94** | **Scott Street Greenhouses Limited**
165 Tanbark Road Niagara-on-the-Lake Regional Municipality of Niagara L0S 1P0 TOWN OF NIAGARA-ON-THE-LAKE
ON | **EBR**

EBR Registry No.:	013-3683	**Proposal Date:**	August 31, 2018
Ministry Ref. No.:	3451-B3TPSQ	**Notice Pub Date:**	August 31, 2018
Notice Type:	Instrument Proposal	**Year:**	2018

Company Name: Scott Street Greenhouses Limited(EPA Part II.1-sewage) - Environmental Compliance Approval (project type: sewage)
Proponent Name: Scott Street Greenhouses Limited
Proposal Address: Post Office Box Delivery 339
Postal Station St. Davids
Niagara-on-the-Lake Ontario
Canada L0S 1P0
Instrument Type: Environmental Compliance Approval (project type: sewage) - EPA Part II.1-sewage
Location Other:
URL: http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTM1OTgx&statusId=MjA3MTEw&language=en

Location:

165 Tanbark Road
Niagara-on-the-Lake
Regional Municipality of Niagara L0S 1P0
TOWN OF NIAGARA-ON-THE-LAKE

Unplottable Summary

Total: 11 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
CA		Tanbark Rd from Line 9 to Line 8 Tanbark Rd/Line 8 Rd	Niagara-on-the-Lake ON	
CA	The Corporation of the Town of Niagara-on-the-Lake	Warner Rd Part of Lots 93 and 94	Niagara-on-the-Lake ON	
CA		Warner Road	Niagara-on-the-Lake ON	
CA		Warner Road Allowance	Niagara-On-The-Lake ON	
CA	R.M. OF NIAGARA	WARNER RD. WATER BOOSTER P.S.	NIAGARA-ON-THE-LAKE TOWN ON	
CA	The Corporation of the Town of Niagara-on-the-Lake	Warner Road	Niagara-on-the-Lake ON	
ECA	The Corporation of the Town of Niagara-on-the-Lake	Warner Rd Part of Lots 93 and 94	Niagara-on-the-Lake ON	L0S 1T0
ECA	The Corporation of the Town of Niagara-on-the-Lake	Warner Rd	Niagara-on-the-Lake ON	L0S 1T0
ECA	The Corporation of the Town of Niagara-on-the-Lake	Warner Road Allowance	Niagara-on-the-Lake ON	L0S 1T0
ECA	The Corporation of the Town of Niagara-on-the-Lake	Tanbark Rd from York Road to south limit of St. David's	Niagara-on-the-Lake ON	L0S 1T0
ECA	The Corporation of the Town of Niagara-on-the-Lake	Warner Rd	Niagara-on-the-Lake ON	L0S 1T0

Unplottable Report

Site:
Tanbark Rd from Line 9 to Line 8 Tanbark Rd/Line 8 Rd Niagara-on-the-Lake ON

Database: ***CA***

Certificate #:	6874-4YSRJN
Application Year:	01
Issue Date:	7/31/01
Approval Type:	Municipal & Private water
Status:	Approved
Application Type:	New Certificate of Approval
Client Name:	Corporation of the Town of Niagara-on-the-Lake
Client Address:	1593 Creek Road, P.O. Box 100
Client City:	Virgil
Client Postal Code:	L0S 1T0
Project Description:	Replacement of 1500 m of existing 300 mm D watermain on Tanbark Rd/Line 8 Rd with 1500 m of 150 mm D watermain.
Contaminants:	
Emission Control:	

Site:
The Corporation of the Town of Niagara-on-the-Lake
Warner Rd Part of Lots 93 and 94 Niagara-on-the-Lake ON

Database: ***CA***

Certificate #:	1119-7GMGT6
Application Year:	2008
Issue Date:	8/14/2008
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site:
Warner Road Niagara-on-the-Lake ON

Database: ***CA***

Certificate #:	9186-5DUN46
Application Year:	02
Issue Date:	9/12/02
Approval Type:	Municipal & Private water
Status:	Approved
Application Type:	New Certificate of Approval
Client Name:	The Corporation of the Town of Niagara-on-the-Lake
Client Address:	1593 Creek Road, P.O. Box 100
Client City:	Virgil
Client Postal Code:	L0S 1T0
Project Description:	Installation of watermain on Warner Road
Contaminants:	
Emission Control:	

Site:
Warner Road Allowance Niagara-On-The-Lake ON

Database: ***CA***

Certificate #:	1574-4KUMNN

Application Year: 00
Issue Date: 6/5/00
Approval Type: Municipal & Private water
Status: Approved
Application Type: New Certificate of Approval
Client Name: Town of Niagara-on-the-Lake
Client Address: P.O. Box 100
Client City: Virgil
Client Postal Code: L0S 1T0
Project Description: This application is for the installation of watermains on Warner Road Allowance between Tanbark and Four Mile Creek Road, York Road allowance between Tanbark Road and Four Mile Creek Road.
Contaminants:
Emission Control:

Site: ***R.M. OF NIAGARA***
WARNER RD. WATER BOOSTER P.S. NIAGARA-ON-THE-LAKE TOWN ON

Database: ***CA***

Certificate #: 7-0352-87-
Application Year: 87
Issue Date: 4/10/1987
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***The Corporation of the Town of Niagara-on-the-Lake***
Warner Road Niagara-on-the-Lake ON

Database: ***CA***

Certificate #: 0314-6SXKLK
Application Year: 2006
Issue Date: 8/24/2006
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***The Corporation of the Town of Niagara-on-the-Lake***
Warner Rd Part of Lots 93 and 94 Niagara-on-the-Lake ON L0S 1T0

Database: ***ECA***

Approval No: 1119-7GMGT6
Approval Date: 2008-08-14
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City: Niagara-on-the-Lake
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: Warner Rd Part of Lots 93 and 94
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/4461-7E9HJV-14.pdf

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Site: ***The Corporation of the Town of Niagara-on-the-Lake***
Warner Rd Niagara-on-the-Lake ON L0S 1T0

Database: ***ECA***

Approval No:	0314-6SXKLK	***MOE District:***	
Approval Date:	2006-08-24	***City:***	Niagara-on-the-Lake
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:	Warner Rd		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/2027-6RLM46-14.pdf		

Site: ***The Corporation of the Town of Niagara-on-the-Lake***
Warner Road Allowance Niagara-on-the-Lake ON L0S 1T0

Database: ***ECA***

Approval No:	1574-4KUMNN	***MOE District:***	
Approval Date:	2000-06-05	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-Municipal and Private Water Works		
Project Type:	Municipal and Private Water Works		
Address:	Warner Road Allowance		
Full Address:			
Full PDF Link:			

Site: ***The Corporation of the Town of Niagara-on-the-Lake***
Tanbark Rd from York Road to south limit of St. David's Niagara-on-the-Lake ON L0S 1T0

Database: ***ECA***

Approval No:	6333-95CMA5	***MOE District:***	
Approval Date:	2013-03-06	***City:***	Niagara-on-the-Lake
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:	Tanbark Rd from York Road to south limit of St. David's		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/1807-95BRPD-14.pdf		

Site: ***The Corporation of the Town of Niagara-on-the-Lake***
Warner Rd Niagara-on-the-Lake ON L0S 1T0

Database: ***ECA***

Approval No:	9186-5DUN46	***MOE District:***	
Approval Date:	2002-09-12	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-Municipal and Private Water Works		
Project Type:	Municipal and Private Water Works		
Address:	Warner Rd		
Full Address:			
Full PDF Link:			

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ***Note:*** *Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Abandoned Aggregate Inventory: Provincial AAGR

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.*

Government Publication Date: Sept 2002*

Aggregate Inventory: Provincial AGR

The Ontario Ministry of Natural Resources maintains a database of all active pits and quarries. The database provides information regarding the registered owner/operator, location name, operation type, approval type, and maximum annual tonnage.

Government Publication Date: Up to Sep 2018

Abandoned Mine Information System: Provincial AMIS

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Government Publication Date: 1800-Nov 2016

Anderson's Waste Disposal Sites: Private ANDR

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1860s-Present

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Jul 31, 2018

Borehole: Provincial BORE

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Government Publication Date: 1875-Jul 2014

Certificates of Approval: Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CofA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

Government Publication Date: 1985-Oct 30, 2011*

Commercial Fuel Oil Tanks: Provincial CFOT

List of commercial underground fuel oil tanks made available by the Fuels Safety Program of the Technical Standards & Safety Authority (TSSA). Ontario Regulation 213/01 of the Technical Standards and Safety Act (2000) requires that all underground tanks be registered with the TSSA. Note: the Fuels Safety Division does not register waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of commercial fuel tanks in the province. The TSSA updates information in its system on an ongoing basis; this listing is a copy of the data captured at one moment in time and is hence limited by the record date provided here.

Government Publication Date: Feb 28, 2017

Chemical Register: Private CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

Government Publication Date: 1999-Jul 31, 2018

Compressed Natural Gas Stations: Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 2012 - Jul 2018

Inventory of Coal Gasification Plants and Coal Tar Sites: Provincial COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.*

Government Publication Date: Apr 1987 and Nov 1988*

Compliance and Convictions: Provincial CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Government Publication Date: 1989-Sep 2018

Certificates of Property Use: Provincial CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Government Publication Date: 1994-Oct 31, 2018

Drill Hole Database: Provincial DRL

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

Government Publication Date: 1886-Nov 30, 2017

Dry Cleaning Facilities: Federal DRYCLEANERS

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.

Government Publication Date: Jan 2004-Dec 2016

Environmental Activity and Sector Registry: Provincial EASR

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval), Please see our ECA database.

Government Publication Date: Oct 2011-Nov 30, 2018

Environmental Registry: Provincial EBR

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Government Publication Date: 1994-Oct 31, 2018

Environmental Compliance Approval: Provincial ECA

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

Government Publication Date: Oct 2011-Nov 30, 2018

Environmental Effects Monitoring: Federal EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Oct 31, 2018

Environmental Issues Inventory System: Federal EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Emergency Management Historical Event: Provincial EMHE

List of locations of historical occurrences of emergency events, including those assigned to the Ministry of Natural Resources by Order-In-Council (OIC) under the Emergency Management and Civil Protection Act, as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance. EMHE record details are reproduced by ERIS under License with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2017.

Government Publication Date: Dec 31, 2016

List of TSSA Expired Facilities: Provincial EXP

List of facilities and tanks - for which there was once a registration - no longer registered with the Fuels Safety Program of the Technical Standards and Safety Authority (TSSA). Includes private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc. Tanks which have been removed from the ground are included in the expired facilities inventory held by the TSSA. Notes: the Fuels Safety Division did not register private fuel underground/aboveground storage tanks prior to January of 1990, or furnace oil tanks prior to May 1, 2002; nor does the Division register waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of expired tanks/tank facilities in the province. The TSSA updates information in its system on an ongoing basis; this listing is hence limited by the record date provided here.

Government Publication Date: Feb 28, 2017

Federal Convictions: Federal FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Government Publication Date: Jun 2000-Oct 2018

Fisheries & Oceans Fuel Tanks: Federal FOFT

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Government Publication Date: 1964-Sep 2017

Fuel Storage Tank: Provincial FST

List of registered private and retail fuel storage tanks made available by the Fuels Safety Program of the Technical Standards & Safety Authority (TSSA). Ontario Regulation 213/01 of the Technical Standards and Safety Act (2000) requires that all underground tanks be registered with the TSSA. Notes: the Fuels Safety Division did not register private fuel underground/aboveground storage tanks prior to January of 1990, or furnace oil tanks prior to May 1, 2002; nor does the Division register waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of fuel storage tanks/tank facilities in the province. The TSSA updates information in its system on an ongoing basis; this listing is hence limited by the record date provided here.

Government Publication Date: Feb 28, 2017

Fuel Storage Tank - Historic: Provincial FSTH

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

Government Publication Date: Pre-Jan 2010*

Ontario Regulation 347 Waste Generators Summary: Provincial GEN

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

Government Publication Date: 1986-June 30, 2018

Greenhouse Gas Emissions from Large Facilities: Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Dec 2016

TSSA Historic Incidents: Provincial HINC

List of historic incidences of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen recorded by the TSSA in their previous incident tracking system. The TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, the TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of historical fuel spills and leaks in the province. This listing is a copy of the data captured at one moment in time and is hence limited by the record date provided here.

Government Publication Date: 2006-June 2009*

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

TSSA Incidents: Provincial INC

List of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen reported to the Spills Action Centre (SAC) and made available by the Technical Standards and Safety Authority (TSSA). Under the Technical Standards & Safety Act (2000), the TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors, and equipment or appliances that use fuels. Includes incidents from fuel-related hazards such as spills, fires, and explosions. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of fuel-related leaks, spills, and incidents in the province. The TSSA updates information in its system on an ongoing basis; this listing is hence limited by the record date provided here.

Government Publication Date: Feb 28, 2017

Landfill Inventory Management Ontario: Provincial LIMO

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the ministry compiles new and updated information. The inventory will include small and large landfills. Additionally, each year the ministry will request operators of the larger landfills complete a landfill data collection form that will be used to update LIMO and will include the following information from the previous operating year. This will include additional information such as estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills will include information such as site owner, site location and certificate of approval # and status.

Government Publication Date: Sep 30, 2017

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Environmental Penalty Annual Report: Provincial MISA PENALTY

This database contains data from Ontario's annual environmental penalty report published by the Ministry of the Environment and Climate Change. These reports provide information on environmental penalties for land or water violations issued to companies in one of the nine industrial sectors covered by the Municipal Industrial Strategy for Abatement (MISA) regulations.

Government Publication Date: Jan 1, 2011 - Dec 31, 2017

Mineral Occurrences: Provincial MNR

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Government Publication Date: 1846-Jan 2018

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

Non-Compliance Reports: Provincial NCPL

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Government Publication Date: Dec 31, 2016

National Defense & Canadian Forces Fuel Tanks: Federal NDFT

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills: Federal NDSP

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Apr 2018

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents: Federal NEBI

Locations of pipeline incidents from 2008 to present, made available by the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Jun 30, 2018

National Energy Board Wells: Federal NEBW

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-May 2017

Oil and Gas Wells: Private OGW

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-August 31, 2018

Ontario Oil and Gas Wells: Provincial OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Government Publication Date: 1800-May 2018

Inventory of PCB Storage Sites: Provincial OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Government Publication Date: 1987-Oct 2004; 2012-Dec 2013

Orders: Provincial ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Government Publication Date: 1994-Oct 31, 2018

Canadian Pulp and Paper: Private PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009-2014

Parks Canada Fuel Storage Tanks: Federal PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register: Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

Government Publication Date: 1988-Mar 2018

TSSA Pipeline Incidents: Provincial PINC

List of pipeline incidents (strikes, leaks, spills) made available by the Technical Standards and Safety Authority (TSSA). Under the Technical Standards & Safety Act (2000), the TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors, and equipment or appliances that use fuels. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of pipeline incidents in the province. The TSSA updates information in its system on an ongoing basis; this listing is hence limited by the record date provided here.

Government Publication Date: Feb 28, 2017

Private and Retail Fuel Storage Tanks: Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Government Publication Date: 1989-1996*

Permit to Take Water: Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all PTTW's on the registry such as OWRA s. 34 - Permit to take water.

Government Publication Date: 1994-Oct 31, 2018

Ontario Regulation 347 Waste Receivers Summary: Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Government Publication Date: 1986-2016

Record of Site Condition: Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.
RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Government Publication Date: 1997-Sept 2001, Oct 2004-Sep 2018

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Jul 31, 2018

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Ontario Spills: Provincial SPL

This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X.

Government Publication Date: 1988-Jul 2018

Wastewater Discharger Registration Database: Provincial SRDS

Information under this heading is combination of the following 2 programs. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment maintained a database of all direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation; Mining; Petroleum Refining; Organic Chemicals; Inorganic Chemicals; Pulp & Paper; Metal Casting; Iron & Steel; and Quarries. All sampling information is now collected and stored within the Sample Result Data Store (SRDS).

Government Publication Date: 1990-Dec 31, 2016

Anderson's Storage Tanks: Private TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1915-1953*

Transport Canada Fuel Storage Tanks: Federal TCFT

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

Government Publication Date: 1970-Aug 2017

TSSA Variances for Abandonment of Underground Storage Tanks: Provincial VAR

List of variances granted for abandoned tanks. Under the Technical Standards and Safety Authority (TSSA) Liquid Fuels Handling Code and Fuel Oil Code, all underground storage tanks must be removed within two years of disuse. If removal of a tank is not feasible, an application may be sought for a variance from this code requirement.
Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of tank variances in the province. The TSSA updates information in its system on an ongoing basis; this listing is hence limited by the record date provided here.

Government Publication Date: Feb 28, 2017

Waste Disposal Sites - MOE CA Inventory: Provincial WDS

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Government Publication Date: Oct 2011-Nov 30, 2018

Waste Disposal Sites - MOE 1991 Historical Approval Inventory: Provincial WDSH

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Government Publication Date: Up to Oct 1990*

Water Well Information System: Provincial WWIS

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Government Publication Date: Dec 31, 2017

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

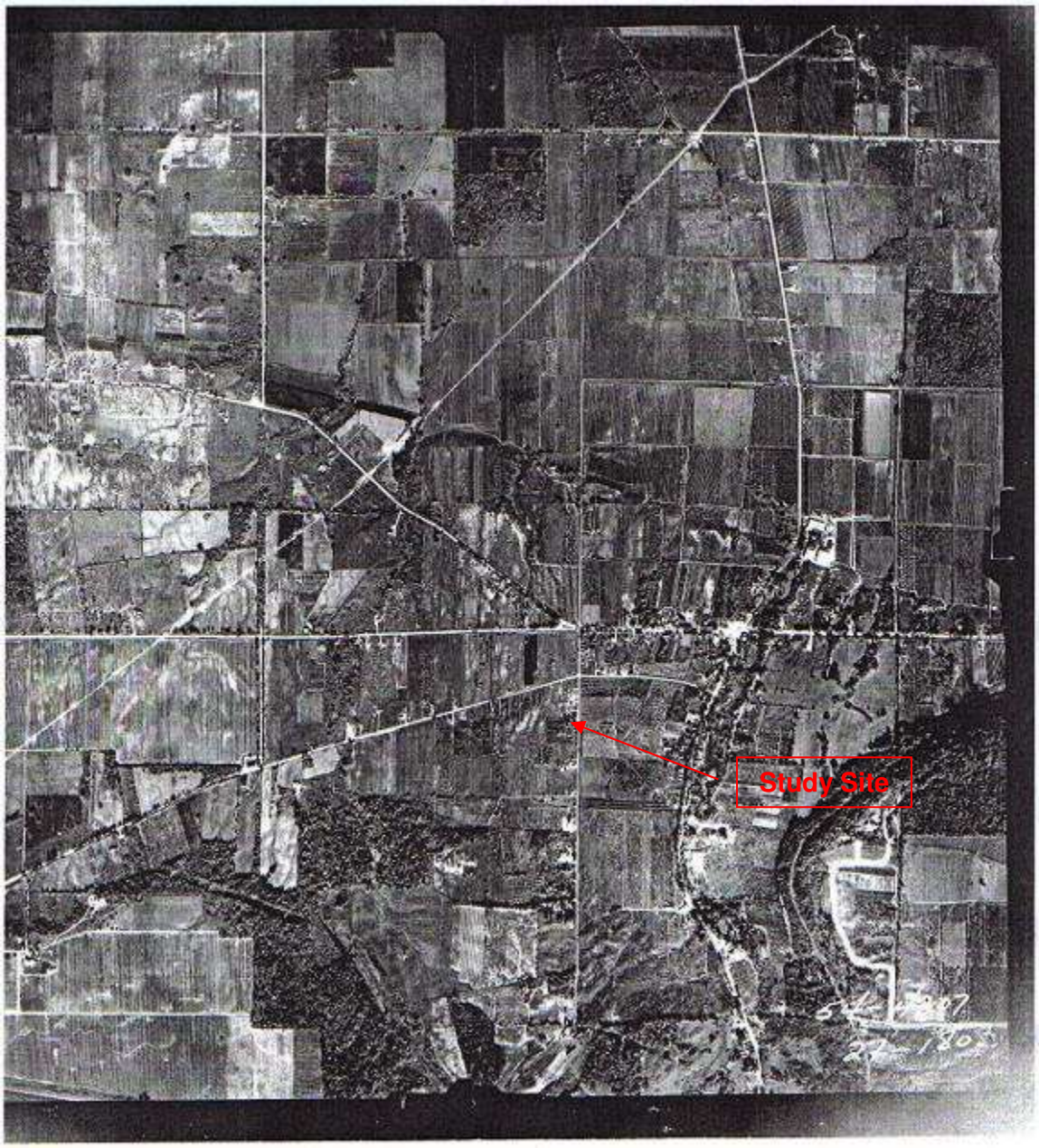
Appendix C:

Aerial Photographs

Aerial Photographs

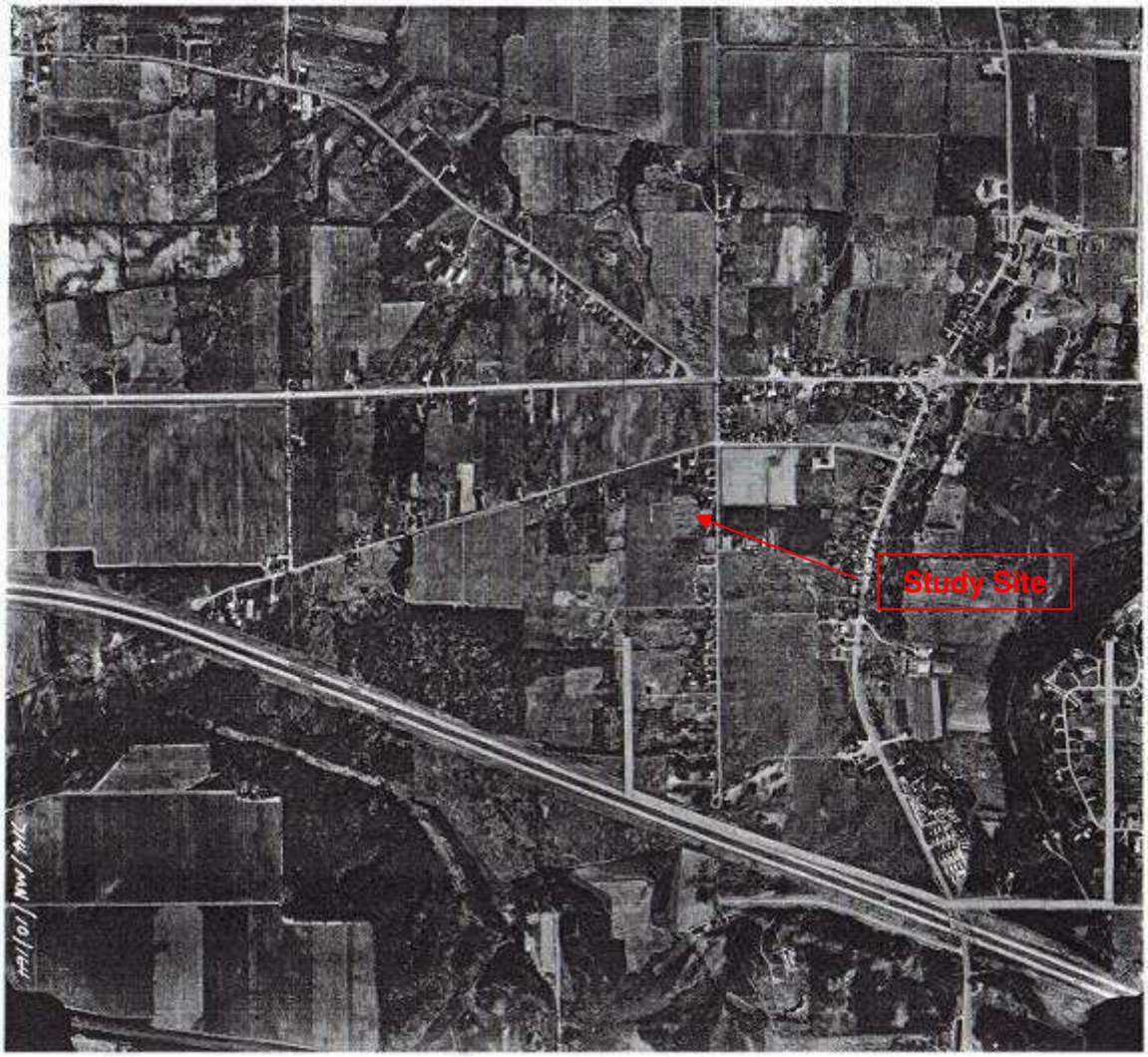
1934

1954

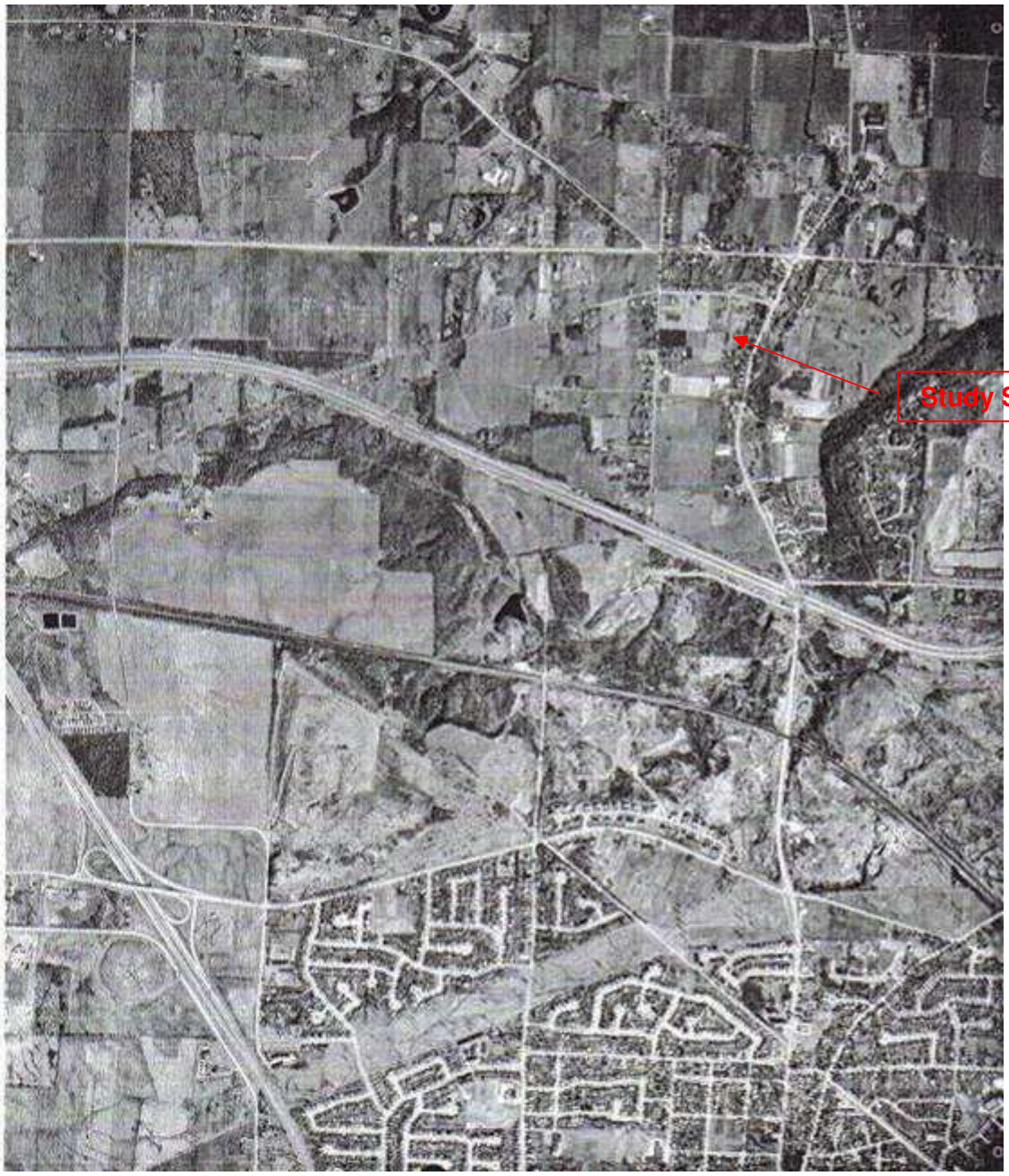


1965

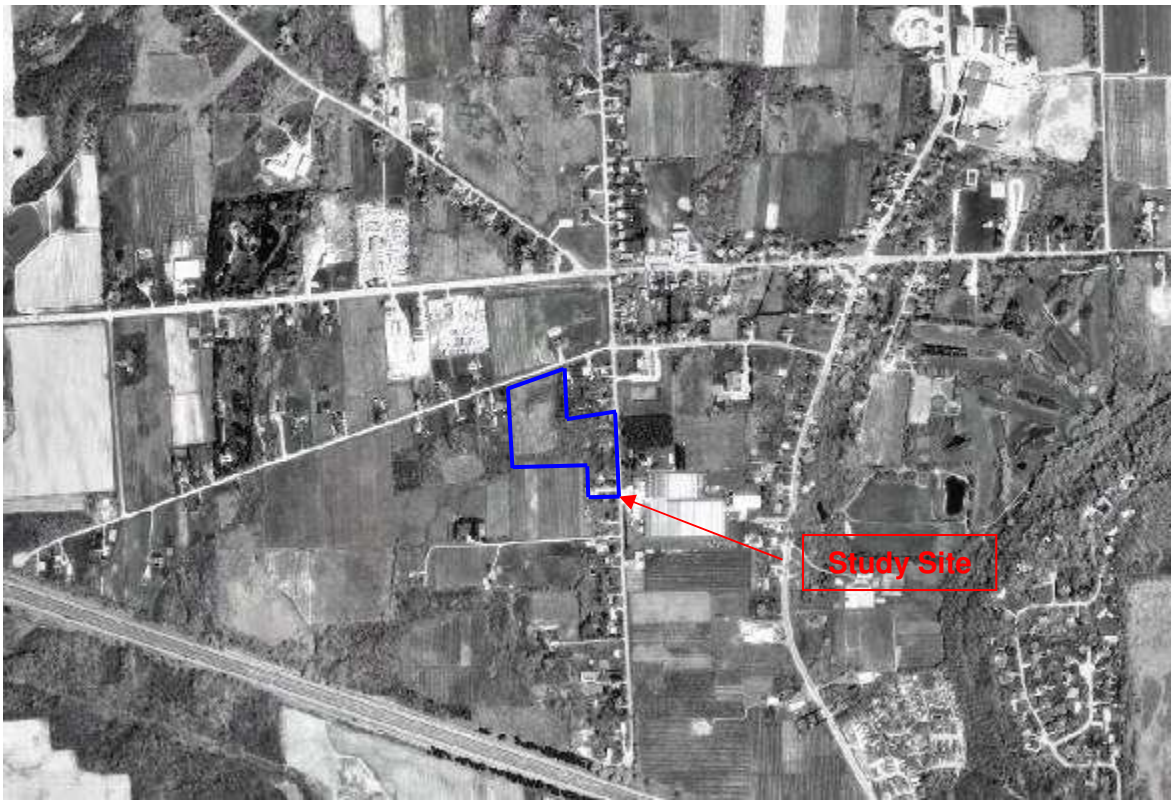
1971



1989



2000



2013

2018

Appendix D:

Site Photo Log

Photo #	Study Site – Exterior of 170 Tanbark Road	Description
1		Front façade of the vacant residential dwelling and detached two (2) car garage, picture facing west.
2		Rear of residence and garage, picture taken from midsection of the backyard, facing east.

Photo #	Study Site – Exterior of 170 Tanbark Road	Description
3		North sides of the residential dwelling and garage, pictures facing south.
4		

Photo #	Study Site – Exterior of 170 Tanbark Road	Description
5		View of yard from the northwest corner of the property, picture facing east.
6		View of yard from northwest corner of the property, picture facing south.

‘

Photo #	Study Site – Interior of 170 Tanbark Road	Description
7		Partially demolished main floor living room. Noted possible designated substances (DSS) & hazardous materials (HM) included window mastic, drywall joint compound and paint.
8		Partially demolished main floor and bathroom. Same DSS & HM were noted as above.

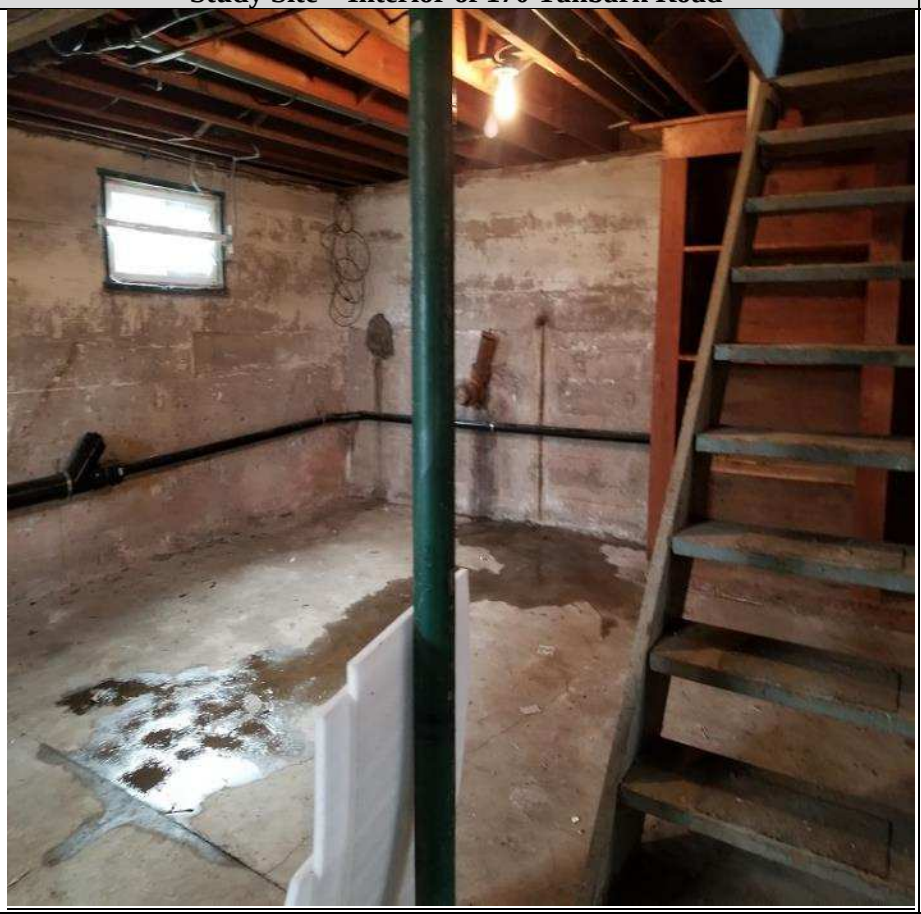
Photo #	Study Site – Interior of 170 Tanbark Road	Description
9		Unfinished basement with some standing water.

Photo #	Study Site – Exterior of 178 Tanbark Road	Description
10		Front façade of vacant residential dwelling and detached single car garage. Picture taken looking west from across Tanbark Road.
11		North side of the dwelling and garage. Picture taken from the northern edge of the property boundary, facing south.

Photo #	Study Site – Exterior of 178 Tanbark Road	Description
12		View of the rear/west side of the structures. Picture facing east.
13		South side of the house. One (1) above ground storage tank (AST) was located in the corner of the basement.

Photo #	Study Site – Exterior of 178 Tanbark Road	Description
14		Interior of single car garage.

Photo #	Study Site – Interior of 178 Tanbark Road	Description
15		Main floor living area, noted potential DSS & HM included drywall joint compound, window mastic and paint.

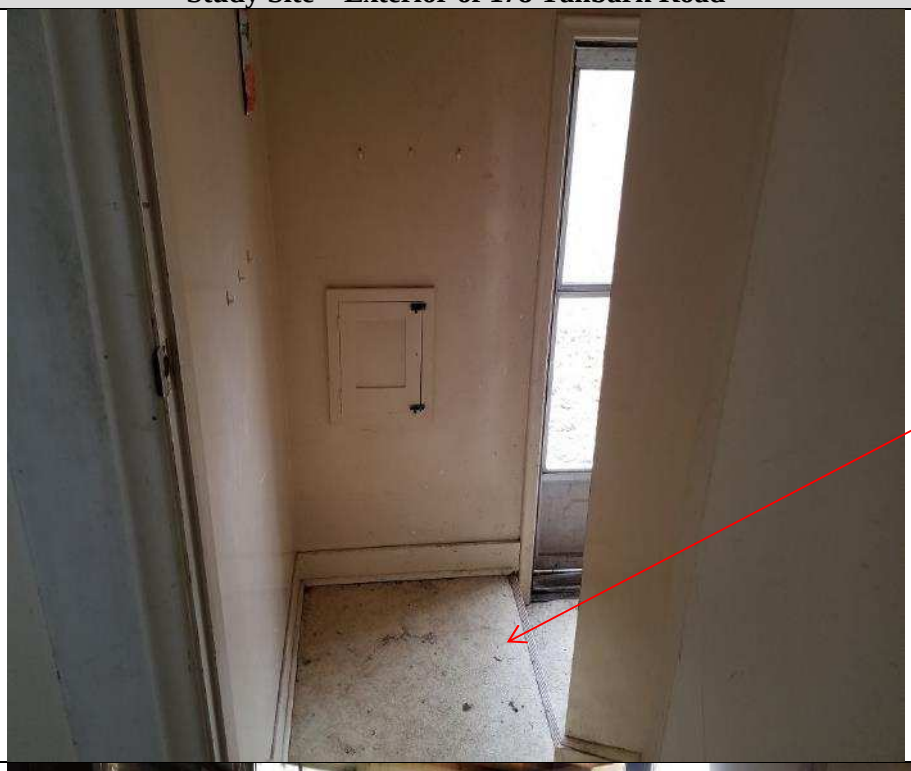
Photo #	Study Site – Exterior of 178 Tanbark Road	Description
16		Back entrance- possible ACM laminate flooring.
17		Basement with former heating oil AST. Noted DSS materials also included paint.

Photo #	Study Site – Exterior of 178 Tanbark Road	Description
18		No visible evidence of cracking, leaks, or staining was noted beneath or surrounding the AST.

Photo #	Study Site – Exterior of 184 Tanbark Road	Description
19		Former foundation pad of residential dwelling at 184 Tanbark Road. Asphalt finished single car driveway. Photo taken facing west.
20		Rear portion of the yard included some rows of orchard trees. Photo taken facing west.

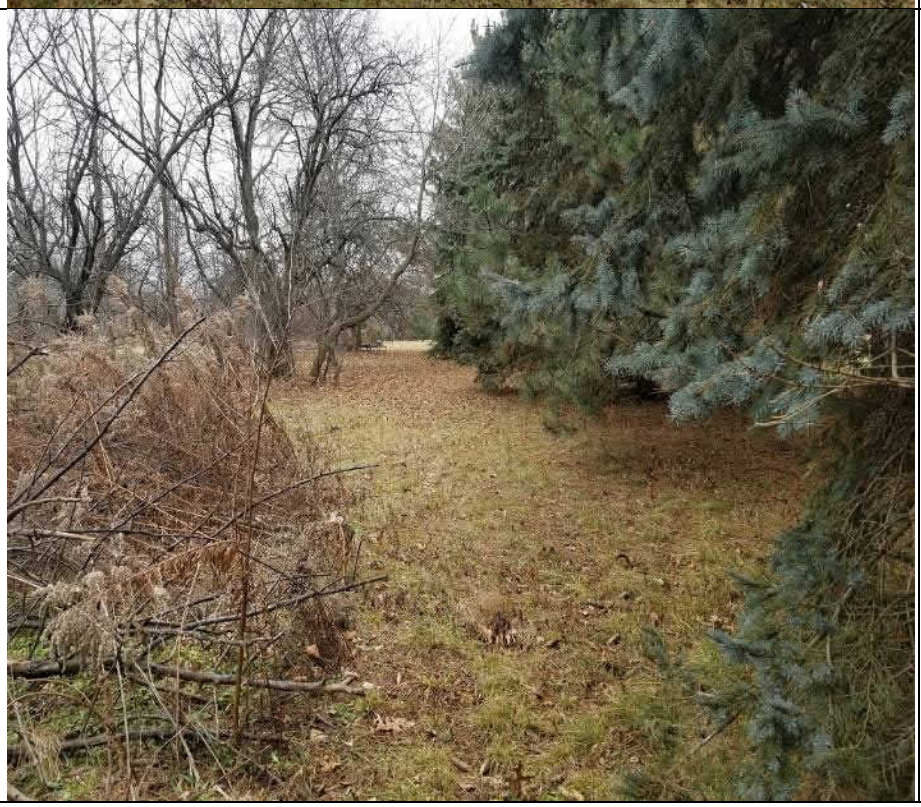
Photo #	Study Site – Exterior of 184 Tanbark Road	Description
21		Photo of the property taken from the northwest corner of the property boundary facing east.
22		Photo taken facing south showing parts of the orchard trees and the western property boundary.

Photo #	Study Site – Exterior of 184 Tanbark Road	Description
23		184 Tanbark Road property facing southeast.
24		Backyard of site with a treehouse and fire pit observed. Picture is facing south.

Photo #	Study Site – Exterior of 184 Tanbark Road	Description
25		Former storage shed in the northeast corner of the property.

Photo #	Study Site – Vacant Lot on Warner Road	Description
26		Southern view of vacant lot on Warner Road.
27		Facing north across vacant lot from southern property boundary.

Photo #	Study Site – Vacant Lot on Warner Road	Description
28		Facing west across vacant lot from eastern property boundary.
29		Facing west across vacant lot looking towards garden shed along southern property boundary.

Photo #	Study Site – Vacant Lot on Warner Road	Description
30		Interior of garden shed.
31		Miscellaneous garbage and household debris

Photo #	Study Site – Adjacent Properties	Description
32		East adjacent residential townhouse properties and parkland.
33		Residential dwelling located across from 170, 178 & 184 Tanbark Road.

Photo #	Study Site – Adjacent Properties	Description
34		South adjacent residential property to 170 Tanbark Road, picture facing southwest.
35		West adjacent residential property to 170 Tanbark Road and south adjacent residential property to 184 Tanbark Rd and the vacant lot on Warner Road, picture facing southwest.

Photo #	Study Site – Adjacent Properties	Description
36		North adjacent residential property to 184 Tanbark Road and east adjacent residential property from the vacant lot, picture facing northwest.
37		North adjacent residential properties to the vacant lot along Warner Road, picture facing northwest.

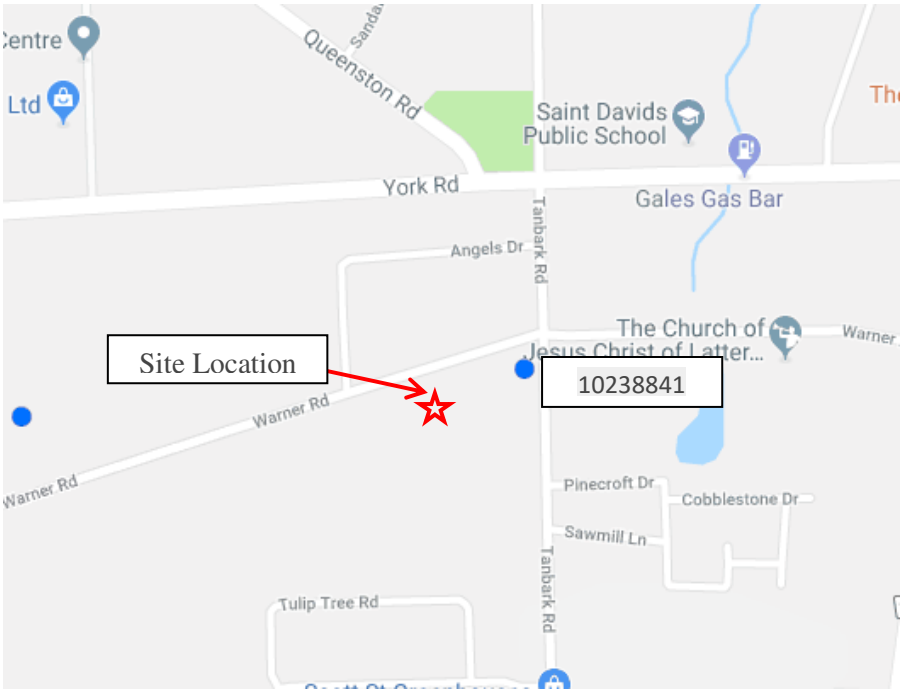
Photo #	Study Site – Adjacent Properties	Description
38		West adjacent residential property to the vacant lot on Warner Road. Picture taken facing west.

Photo #	Soil Sampling: Test Pit Locations	Description
39		Test pit locations at 178 Tanbark Road
40		Test pit locations within the vacant lot. Picture facing northwest.

Appendix E:

Ministry of Environment, Conservation and Parks Water Well Records

Oil, Gas & Salt Resources Library: 170, 178, 184 Tanbark Road and Vacant lot on Warner Road, Niagara on the Lake, ON



According to the Ministry of the Environment, Conservation and Parks Well Records database, there were not any well records associated with the study site but one (1) record available from within 0.25 km of the site, which is considered part of the study area. Each record can contain information pertaining to date of installation, well use, type of stratigraphy encountered and groundwater levels. The available record is included below.

Well Information

Borehole ID	10238841	**Well Status**	Water Supply
First Use	Domestic	**Ground Elevation**	0.00
Date Completed	1951-04-12	**Township**	NIAGARA-ON-THE-LAKE TOWN (NIAGARA TWP)
County	NIAGARA (LINCOLN)	**Longitude**	-79.108576
lot	095	**Latitude**	43.156557

Water

Depth	Water Kind
83.00 ft	FRESH

Stratigraphy

Top Depth	Bottom Depth	Colour	Material 1	Material 2	Material 3
0.00	30.00 ft		CLAY		
30.00	45.00 ft	RED	HARDPAN		
45.00	83.00 ft		MEDIUM SAND		

Casing

Top From	Bottom Depth	Diameter	Material
83.00 ft	6.00 inch	STEEL	

Pump Tests

Pump Depth	Static Level	Level After Pumping	Recommended Depth	Pumping Rate	Flowing Rate
	22.00 ft	70.00 ft		10.00 GPM	

Appendix F:

Test Pit Logs

TEST PIT LOG HALLEX ENVIRONMENTAL LTD

Project #: E-18-54-1	Client: Riverview Estates JV Inc.	Location: 170, 178 & 184 Tanbark road & a vacant lot on Warner Road in Niagara On the Lake, ON		Date: January 10 & 11, 2019
Test Pit #	**Depth (m)**	**Description**	**Sample #**	**Lab**
TP#: 1	0 - 0.2	Grass and organics		
	0.2 - 0.9	Brown sandy loam		
	0.9 - 1.8	Brown SILT with some CLAY - No odours	A	
	1.8 - 2.1	Brown CLAY with some SILT - No odours	B	PHCs (F1-F4)/BTEX & PAHs
TP#: 2	0 - 0.2	Grass and organics		
	0.2 - 0.9	Brown sandy loam		
	0.9 - 1.8	Brown SILT with some CLAY - No odours	A	
	1.8 - 2.1	Brown CLAY with some SILT - No odours	B	PHCs (F1-F4)/BTEX & PAHs
TP#: 3	0 - 0.2	Grass and organics		
	0.2 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic
	1.2 - 1.5	Brown CLAY with some SILT	B	
TP#: 4	0 - 0.2	Grass and organics		
	0.2 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic
	1.2 - 1.5	Brown CLAY with some SILT	B	
TP#: 5	0 - 0.2	Grass and organics		
	0.2 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic
	1.2 - 1.5	Brown CLAY with some SILT	B	
TP#: 6	0 - 0.2	Grass and organics		
	0.2 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic
	1.2 - 1.5	Brown CLAY with some SILT	B	
TP#: 7	0 - 0.2	Grass and organics		
	0.2 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic
	1.2 - 1.5	Brown CLAY with some SILT	B	
TP#: 8	0 - 0.2	Grass and organics		
	0.2 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic
	1.2 - 1.5	Brown CLAY with some SILT	B	
TP#: 9	0 - 0.2	Grass and organics		
	0.2 - 0.9	Brown sandy loam		
	0.9 - 1.8	Brown SILT with some CLAY - No odours	A	
	1.8 - 2.1	Brown CLAY with some SILT - No odours	B	PHCs (F1-F4)/BTEX & PAHs
TP#: 10	0 - 0.2	Grass and organics		
	0.2 - 0.7	Brown SANDY Loam		
	0.7 - 0.9	White small Gravel FILL - No odours	1	
	0.9 - 2.1	Brown CLAY Loam - No odours	2	PHCs (F1-F4)/BTEX & PAHs
TP#: 11	0 - 0.2	Grass and organics		
	0.2 - 1.2	Brown CLAY LOAM	1	Lead/Arsenic
	1.2 - 1.5	Brown CLAY with some SILT	2	

TEST PIT LOG HALLEX ENVIRONMENTAL LTD

Project #: E-18-54-1	Client: Riverview Estates JV Inc.	Location: 170, 178 & 184 Tanbark road & a vacant lot on Warner Road in Niagara On the Lake, ON		Date: January 10 & 11, 2019
Test Pit #	**Depth (m)**	**Description**	**Sample #**	**Lab**
TP#: 12	0 - 0.2	Grass and organics		
	0.2 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic
	1.2 - 1.5	Brown CLAY with some SILT	B	
TP#: 13	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic & OC Pesticides
	1.2 - 1.5	Brown CLAY LOAM	B	
TP#: 14	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic & OC Pesticides
	1.2 - 1.5	Brown CLAY LOAM	B	
TP#: 15	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic & OC Pesticides
	1.2 - 1.5	Brown CLAY LOAM	B	
TP#: 16	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic & OC Pesticides
	1.2 - 1.5	Brown CLAY LOAM	B	
TP#: 17	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic
	1.2 - 1.5	Brown CLAY LOAM	B	
TP#: 18	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic & OC Pesticides
	1.2 - 1.5	Brown CLAY LOAM	B	
TP#: 19	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic & OC Pesticides
	1.2 - 1.5	Brown CLAY LOAM	B	
TP#: 20	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic & OC Pesticides
	1.2 - 1.5	Brown CLAY LOAM	B	
TP#: 21	0 - 1.2	Brown CLAY LOAM	A	Lead/Arsenic & OC Pesticides
	1.2 - 1.5	Brown CLAY LOAM	B	

Appendix G:

Soil Laboratory Results

PARACEL LABORATORIES LTD.
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Ottawa, ON, K1G 4J8
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-18-54-1
Custody: 43556/557

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019

Order #: 1902428

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

Paracel ID	Client ID
1902428-01	TP-1B
1902428-02	TP-2B
1902428-03	TP-3A
1902428-04	TP-4A
1902428-05	TP-5A
1902428-06	TP-6A
1902428-07	TP-7A
1902428-08	TP-9B
1902428-09	TP-10B
1902428-10	TP-8A
1902428-11	TP-11A
1902428-12	TP-12A
1902428-13	TP-13A
1902428-14	TP-14A
1902428-15	TP-15A
1902428-16	TP-16A
1902428-17	TP-17A
1902428-18	TP-18A
1902428-19	TP-19A
1902428-20	TP-20A
1902428-21	TP-21A

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019
Project Description: E-18-54-1

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	17-Jan-19	15-Jan-19
Metals, ICP-MS	EPA 6020 - Digestion - ICP-MS	16-Jan-19	16-Jan-19
PHC F1	CWS Tier 1 - P&T GC-FID	17-Jan-19	15-Jan-19
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	14-Jan-19	15-Jan-19
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	13-Jan-19	15-Jan-19
Solids, %	Gravimetric, calculation	16-Jan-19	16-Jan-19

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 17-Jan-2019

Order Date: 11-Jan-2019

Project Description: E-18-54-1

	Client ID:	TP-1B	TP-2B	TP-3A	TP-4A
	Sample Date:	01/10/2019 10:00	01/10/2019 10:00	01/10/2019 10:00	01/10/2019 10:00
	Sample ID:	1902428-01	1902428-02	1902428-03	1902428-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	83.1	83.4	83.6	81.6
Metals					
Arsenic	1 ug/g dry	-	-	6	7
Lead	1 ug/g dry	-	-	10	10
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene-d8	Surrogate	96.7%	94.5%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	-	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	-	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	-	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	-	-

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019
Project Description: E-18-54-1

	Client ID:	TP-1B	TP-2B	TP-3A	TP-4A
	Sample Date:	01/10/2019 10:00	01/10/2019 10:00	01/10/2019 10:00	01/10/2019 10:00
	Sample ID:	1902428-01	1902428-02	1902428-03	1902428-04
	MDL/Units	Soil	Soil	Soil	Soil
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	-	-
Pyrene	0.02 ug/g dry	<0.02	<0.02	-	-
2-Fluorobiphenyl	Surrogate	87.9%	77.0%	-	-
Terphenyl-d14	Surrogate	105%	93.6%	-	-

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 17-Jan-2019

Order Date: 11-Jan-2019

Project Description: E-18-54-1

	Client ID:	TP-5A	TP-6A	TP-7A	TP-9B
	Sample Date:	01/10/2019 10:00	01/10/2019 10:00	01/10/2019 10:00	01/10/2019 10:00
	Sample ID:	1902428-05	1902428-06	1902428-07	1902428-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	80.4	83.6	67.1	84.8
Metals					
Arsenic	1 ug/g dry	8	4	8	-
Lead	1 ug/g dry	11	9	13	-
Volatiles					
Benzene	0.02 ug/g dry	-	-	-	<0.02
Ethylbenzene	0.05 ug/g dry	-	-	-	<0.05
Toluene	0.05 ug/g dry	-	-	-	<0.05
m,p-Xylenes	0.05 ug/g dry	-	-	-	<0.05
o-Xylene	0.05 ug/g dry	-	-	-	<0.05
Xylenes, total	0.05 ug/g dry	-	-	-	<0.05
Toluene-d8	Surrogate	-	-	-	95.1%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	-	-	-	<7
F2 PHCs (C10-C16)	4 ug/g dry	-	-	-	<4
F3 PHCs (C16-C34)	8 ug/g dry	-	-	-	<8
F4 PHCs (C34-C50)	6 ug/g dry	-	-	-	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	-	-	<0.02
Acenaphthylene	0.02 ug/g dry	-	-	-	<0.02
Anthracene	0.02 ug/g dry	-	-	-	<0.02
Benzo [a] anthracene	0.02 ug/g dry	-	-	-	<0.02
Benzo [a] pyrene	0.02 ug/g dry	-	-	-	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	-	-	-	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	-	-	-	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	-	-	-	<0.02
Chrysene	0.02 ug/g dry	-	-	-	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	-	-	<0.02
Fluoranthene	0.02 ug/g dry	-	-	-	<0.02
Fluorene	0.02 ug/g dry	-	-	-	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	-	-	<0.02
1-Methylnaphthalene	0.02 ug/g dry	-	-	-	<0.02
2-Methylnaphthalene	0.02 ug/g dry	-	-	-	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	-	-	-	<0.04
Naphthalene	0.01 ug/g dry	-	-	-	<0.01

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019
Project Description: E-18-54-1

	Client ID:	TP-5A	TP-6A	TP-7A	TP-9B
	Sample Date:	01/10/2019 10:00	01/10/2019 10:00	01/10/2019 10:00	01/10/2019 10:00
	Sample ID:	1902428-05	1902428-06	1902428-07	1902428-08
	MDL/Units	Soil	Soil	Soil	Soil
Phenanthrene	0.02 ug/g dry	-	-	-	<0.02
Pyrene	0.02 ug/g dry	-	-	-	<0.02
2-Fluorobiphenyl	Surrogate	-	-	-	89.6%
Terphenyl-d14	Surrogate	-	-	-	107%

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 17-Jan-2019

Order Date: 11-Jan-2019

Project Description: E-18-54-1

	Client ID:	TP-10B	TP-8A	TP-11A	TP-12A
	Sample Date:	01/10/2019 10:00	01/10/2019 10:00	01/11/2019 12:00	01/11/2019 12:00
	Sample ID:	1902428-09	1902428-10	1902428-11	1902428-12
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	93.1	80.3	79.1	80.4
Metals					
Arsenic	1 ug/g dry	-	7	6	7
Lead	1 ug/g dry	-	10	19	14
Volatiles					
Benzene	0.02 ug/g dry	<0.02	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	-	-	-
o-Xylene	0.05 ug/g dry	<0.05	-	-	-
Xylenes, total	0.05 ug/g dry	<0.05	-	-	-
Toluene-d8	Surrogate	92.9%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-

Certificate of Analysis

Report Date: 17-Jan-2019

Client: Hallex Environmental Ltd.

Order Date: 11-Jan-2019

Client PO:

Project Description: E-18-54-1

	Client ID:	TP-10B	TP-8A	TP-11A	TP-12A
	Sample Date:	01/10/2019 10:00	01/10/2019 10:00	01/11/2019 12:00	01/11/2019 12:00
	Sample ID:	1902428-09	1902428-10	1902428-11	1902428-12
	MDL/Units	Soil	Soil	Soil	Soil
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	<0.02	-	-	-
2-Fluorobiphenyl	Surrogate	78.8%	-	-	-
Terphenyl-d14	Surrogate	101%	-	-	-

	Client ID:	TP-13A	TP-14A	TP-15A	TP-16A
	Sample Date:	01/11/2019 12:00	01/11/2019 12:00	01/11/2019 12:00	01/11/2019 12:00
	Sample ID:	1902428-13	1902428-14	1902428-15	1902428-16
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	80.0	80.8	80.3	80.0
Metals					
Arsenic	1 ug/g dry	6	5	6	4
Lead	1 ug/g dry	14	15	9	8

	Client ID:	TP-17A	TP-18A	TP-19A	TP-20A
	Sample Date:	01/11/2019 12:00	01/11/2019 12:00	01/11/2019 12:00	01/11/2019 12:00
	Sample ID:	1902428-17	1902428-18	1902428-19	1902428-20
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	83.7	76.7	80.5	79.6
Metals					
Arsenic	1 ug/g dry	5	6	6	6
Lead	1 ug/g dry	12	12	11	15

	Client ID:	TP-21A	-	-	-
	Sample Date:	01/11/2019 12:00	-	-	-
	Sample ID:	1902428-21	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	84.8	-	-	-
Metals					
Arsenic	1 ug/g dry	5	-	-	-
Lead	1 ug/g dry	11	-	-	-

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019
Project Description: E-18-54-1

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Arsenic	ND	1	ug/g						
Lead	ND	1	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.10*		*ug/g*		*82.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.27*		*ug/g*		*95.4*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*3.10*		*ug/g*		*97.0*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	18	4	ug/g dry	12			35.3	30	QR-01
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Metals									
Arsenic	7.8	1	ug/g dry	7.0			9.9	30	
Lead	21.9	1	ug/g dry	19.0			14.0	30	
Physical Characteristics									
% Solids	73.3	0.1	% by Wt.	70.9			3.4	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND				40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND				40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND				40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				40	
Chrysene	ND	0.02	ug/g dry	ND				40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND				40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND				40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	ND	0.02	ug/g dry	ND				40	
Pyrene	ND	0.02	ug/g dry	ND				40	
Surrogate: 2-Fluorobiphenyl	*1.07*		*ug/g dry*		*69.9*	*50-140*			
Surrogate: Terphenyl-d14	*1.27*		*ug/g dry*		*83.4*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	*3.74*		*ug/g dry*		*102*	*50-140*			

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019
Project Description: E-18-54-1

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	201	7	ug/g		100	80-120			
F2 PHCs (C10-C16)	127	4	ug/g	12	129	60-140			
F3 PHCs (C16-C34)	269	8	ug/g	ND	124	60-140			
F4 PHCs (C34-C50)	146	6	ug/g	ND	106	60-140			
Metals									
Arsenic	49.8		ug/L	2.8	94.1	70-130			
Lead	49.8		ug/L	7.6	84.5	70-130			
Semi-Volatiles									
Acenaphthene	0.141	0.02	ug/g	ND	73.8	50-140			
Acenaphthylene	0.129	0.02	ug/g	ND	67.6	50-140			
Anthracene	0.136	0.02	ug/g	ND	71.4	50-140			
Benzo [a] anthracene	0.127	0.02	ug/g	ND	66.5	50-140			
Benzo [a] pyrene	0.152	0.02	ug/g	ND	79.8	50-140			
Benzo [b] fluoranthene	0.170	0.02	ug/g	ND	89.0	50-140			
Benzo [g,h,i] perylene	0.157	0.02	ug/g	ND	82.6	50-140			
Benzo [k] fluoranthene	0.168	0.02	ug/g	ND	87.9	50-140			
Chrysene	0.142	0.02	ug/g	ND	74.5	50-140			
Dibenzo [a,h] anthracene	0.152	0.02	ug/g	ND	79.6	50-140			
Fluoranthene	0.137	0.02	ug/g	ND	72.0	50-140			
Fluorene	0.136	0.02	ug/g	ND	71.3	50-140			
Indeno [1,2,3-cd] pyrene	0.137	0.02	ug/g	ND	71.8	50-140			
1-Methylnaphthalene	0.146	0.02	ug/g	ND	76.8	50-140			
2-Methylnaphthalene	0.152	0.02	ug/g	ND	80.0	50-140			
Naphthalene	0.161	0.01	ug/g	ND	84.3	50-140			
Phenanthrene	0.135	0.02	ug/g	ND	70.5	50-140			
Pyrene	0.139	0.02	ug/g	ND	72.8	50-140			
Surrogate: 2-Fluorobiphenyl	*1.08*		*ug/g*		*71.0*	*50-140*			
Volatiles									
Benzene	4.75	0.02	ug/g		119	60-130			
Ethylbenzene	3.82	0.05	ug/g		95.4	60-130			
Toluene	3.72	0.05	ug/g		93.0	60-130			
m,p-Xylenes	6.94	0.05	ug/g		86.8	60-130			
o-Xylene	3.50	0.05	ug/g		87.5	60-130			

Qualifier Notes:

QC Qualifiers :

QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

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

Paracel ID: 1902428

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Chain of Custody
(Lab Use Only)
№ 43556

Page 1 of 2

Client Name: Hallex Environmental Ltd.	Project Reference: E-18-54-1	**Turnaround Time:**	
Contact Name: Contact: Kevin Christian	Quote #	☐ 1 Day	☐ 3 Day
Address: 4999 Victoria Ave. Niagara Falls, ON L2E 4C9	PO #	☐ 2 Day	☒ Regular
Telephone: Ph: 905-988-8030	Email Address: kchristian@hallex.ca jglasier@hallex.ca	Date Required:	

Criteria: ☒ O. Reg. 153/04 (As Amended) Table 3 ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ☐ Other:

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

Required Analyses

Paracel Order Number: 1902428

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC F1-F4 + BTEX	PAH	Lead	Arsenic
1	TP-1B	S		2	JAN10	10am	X	X		
2	TP-2B	|		2	|	|	X	X		
3	TP-3A	|		1	|	|			X	X
4	TP-4A	|		1	|	|			X	X
5	TP-5A	|		1	|	|			X	X
6	TP-6A	|		1	|	|			X	X
7	TP-7A	|		1	|	|			X	X
8	TP-9B	|		2	|	|	X	X		
9	TP-10B	|		2	V	V	X	X		
10	TP-8A	V		1					X	X

Comments:

Method of Delivery: walkin

Relinquished By (Sign):	Received by Driver/Depot: Niagara BHomenier	Received at Lab:
Relinquished By (Print): Nicole Metz	Date/Time: 11Jan19	Date/Time: 12/01/2019 10:30
Date/Time: Jan 11/19 @ 2:35pm	Temperature: 2.9 °C	Temperature: 0.9 °C

Verified By: BHomenier
Date/Time: 11Jan19
pH Verified [ ] By: NA

Paracel ID: 1902428

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Chain of Custody
(Lab Use Only)
№ 43557

Page 2 of 2

Client Name:	Hallex Environmental Ltd.
Contact Name:	Contact: Kevin Christian
Address:	4999 Victoria Ave. Niagara Falls, ON L2E 4C9
Telephone:	Ph: 905-988-8030
Project Reference:	E-18-54-1
Quote #	
PO #	
Email Address:	kchristian@hallex.ca jglasier@hallex.ca

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☑ Regular
Date Required: _____

Criteria: ☒ O. Reg. 153/04 (As Amended) Table 3 ☒ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

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

Required Analyses

Paracel Order Number: 1902428

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Lead	Arsenic
1	TP-11A	S		1	Jan 11	12pm	X	X
2	TP-12A						X	X
3	TP-13A						X	X
4	TP-14A						X	X
5	TP-15A						X	X
6	TP-16A						X	X
7	TP-17A						X	X
8	TP-18A						X	X
9	TP-19A						X	X
10	TP-20A						X	X

Comments: TP-21A

Method of Delivery: walkin

Relinquished By (Sign): Nicole Metz	Received by Driver/Depot: Niagara BHomenier	Received at Lab: [illegible]	Verified By: BHomenier
Relinquished By (Print): Nicole Metz	Date/Time: 11 Jan 19	Date/Time: 12/01/2019 10:30	Date/Time: 11 Jan 19
Date/Time: Jan 11/19 @ 2:35pm	Temperature: 2.9 °C	Temperature: 0.9 °C	pH Verified [ ] By: VA

Chain of Custody (Blank) - Rev 0.4 Feb 2016

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Ottawa, ON, K1G 4J8
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-18-54-1
Custody: 119195

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019

Order #: 1902433

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

Paracel ID	Client ID
1902433-01	TP-1A
1902433-02	TP-8A
1902433-03	TP-17A

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019
Project Description: E-18-54-1

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Texture - Coarse Med/Fine	Based on ASTM D2487	16-Jan-19	17-Jan-19

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 17-Jan-2019
Order Date: 11-Jan-2019
Project Description: E-18-54-1

	Client ID:	TP-1A	TP-8A	TP-17A	-
	Sample Date:	01/10/2019 11:00	01/10/2019 11:00	01/11/2019 11:00	-
	Sample ID:	1902433-01	1902433-02	1902433-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
>75 um	0.1 %	26.3	9.4	11.7	-
<75 um	0.1 %	73.7	90.6	88.3	-
Texture	0.1 %	Med/Fine	Med/Fine	Med/Fine	-

Qualifier Notes:

Sample Qualifiers :

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

Paracel ID: 1902433

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e: paracel@paracellabs.com

Chain of Custody
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№ 119195

Page 1 of 1

Client Name:	Hallex Environmental Ltd.
Contact Name:	Contact: Kevin Christian
Address:	4999 Victoria Ave. Niagara Falls, ON L2E 4C9
Telephone:	Ph: 905-988-8030
Project Reference:	E-18-54-1
Quote #	
PO #	
Email Address:	kchristian@hallex.ca jglasier@hallex.ca

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☒ Regular
Date Required: _____

Criteria: ☐ O. Reg. 153/04 (As Amended) Table 3 ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

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

Required Analyses

	Paracel Order Number: 1902433 / Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Grain Size Texture					
1	TP-1a	S		1	Jan 10	11 am								X					
2	TP-8a	↓		↓	"	"								X					
3	TP-17a	↓		↓	Jan 11	"								X					
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: walk.

Relinquished By (Sign): Nicole Metz	Received by Driver/Depot: Niagara B Hamenier	Received at Lab:	Verified By: B Hamenier
Relinquished By (Print): Nicole Metz	Date/Time: 11 Jan 19 1500	Date/Time: 12/01/2019	Date/Time: 11 Jan 19
Date/Time: Jan 11/19 3:04pm	Temperature: 29 °C	Temperature: 0.9 °C	pH Verified [ ] By:

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Niagara-on-the-Lake, ON, L0S 1J0
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www.paracellabs.com

Subcontracted Analysis

Hallex Environmental Ltd.
4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Tel: (905) 357-4015
Fax: (905) 353-1105

Paracel Report No **1903365**
Client Project(s): **E-18-54-1**
Client PO:
Reference:

Order Date: 16-Jan-19
Report Date: 25-Jan-19

CoC Number: **47165**

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
1903365-01	TP-13a	Pesticides - Organochlorine in soil
1903365-02	TP-14a	Pesticides - Organochlorine in soil
1903365-03	TP-15a	Pesticides - Organochlorine in soil
1903365-04	TP-16a	Pesticides - Organochlorine in soil
1903365-05	TP-18a	Pesticides - Organochlorine in soil
1903365-06	TP-19a	Pesticides - Organochlorine in soil
1903365-07	TP-20a	Pesticides - Organochlorine in soil
1903365-08	TP-21a	Pesticides - Organochlorine in soil

TESTMARK Laboratories Ltd.
Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Client:	Beverly Homeniek	Work Order Number:	364206
Company:	Paracel Laboratories Ltd.	PO #:	
Address:	360 York Rd. Unit 16B Niagara-on-the-Lake, ON,	Regulation:	O.Reg 153 Table 3 Soil Stringent
		Project #:	1903365
Phone:	(905) 682-9300	DWS #:	
Email:	bhomeniek@paracellabs.com	Sampled By:	Beverly Homeniek
Date Order Received:	1/18/2019	Analysis Started:	1/25/2019
Arrival Temperature:	4 °C	Analysis Completed:	1/25/2019

WORK ORDER SUMMARY

ANALYSES WERE PERFORMED ON THE FOLLOWING SAMPLES. THE RESULTS RELATE ONLY TO THE ITEMS TESTED.

Sample Description	Lab ID	Matrix	Type	Comments	Date Collected	Time Collected
TP-13a	1412330	Soil	None		1/11/2019	11:00 AM
TP-14a	1412331	Soil	None		1/11/2019	11:00 AM
TP-15a	1412332	Soil	None		1/11/2019	11:00 AM
TP-16a	1412333	Soil	None		1/11/2019	11:00 AM
TP-18a	1412334	Soil	None		1/11/2019	11:00 AM
TP-19a	1412335	Soil	None		1/11/2019	11:00 AM
TP-20a	1412336	Soil	None		1/11/2019	11:00 AM
TP-21a	1412337	Soil	None		1/11/2019	11:00 AM

METHODS AND INSTRUMENTATION

THE FOLLOWING METHODS WERE USED FOR YOUR SAMPLE(S):

Method	Lab	Description	Reference
Moisture (A99)	Garson	Determination of Percent Moisture	In House
OCPs Soil (A19)	Garson	Determination of Organochlorine Pesticides in Soil by GC/ECD	Modified from SW846-8081B

7 Margaret Street, Garson, ON, P3L 1E1
Phone: (705) 693-1121 Fax: (705) 693-1124 Web: www.testmark.ca

CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.

Work Order Number: 364206

This report has been approved by:

Khaled Omari, Ph.D.
Laboratory Director

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WORK ORDER RESULTS

Sample Description	TP - 13a		TP - 14a		TP - 15a		TP - 16a			
Lab ID	1412330		1412331		1412332		1412333			
General Chemistry	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 3 Soil Stringent
% Moisture	19.7	0.1	21.4	0.1	18	0.1	18.7	0.1	%	~

Sample Description	TP - 18a		TP - 19a		TP - 20a		TP - 21a			
Lab ID	1412334		1412335		1412336		1412337			
General Chemistry	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 3 Soil Stringent
% Moisture	18.4	0.1	30.8	0.1	22.6	0.1	18.6	0.1	%	~

Sample Description	TP - 13a		TP - 14a		TP - 15a		TP - 16a			
Lab ID	1412330		1412331		1412332		1412333			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 3 Soil Stringent
2,4'-DDD	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
2,4'-DDE	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
2,4'-DDT	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
4,4'-DDD	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
4,4'-DDE	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
4,4'-DDT	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
Aldrin	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.05
DDD (Total) (Calc.)	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	3.3

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Sample Description	TP - 13a		TP - 14a		TP - 15a		TP - 16a			
Lab ID	1412330		1412331		1412332		1412333			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 3 Soil Stringent
DDE (Total) (Calc.)	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.26
DDT (Total) (Calc.)	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	1.4
Decachlorobiphenyl (Surr.)	62 [74]	N/A	80	N/A	76	N/A	81	N/A	% Rec	~
Dieldrin	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.05
Endosulfan I	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
Endosulfan I + II (Calc.)	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.04
Endosulfan II	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
Endosulfan sulfate	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
Endrin	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.04
Endrin aldehyde	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
Heptachlor	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.15
Heptachlor epoxide	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.05
Hexachlorobenzene	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.52
Hexachlorobutadiene	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.012
Hexachloroethane	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.071
Methoxychlor	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.13
Mirex	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~

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Sample Description	TP - 13a		TP - 14a		TP - 15a		TP - 16a			
Lab ID	1412330		1412331		1412332		1412333			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 3 Soil Stringent
Oxychlordane	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
ß-BHC	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
α - Chlordane	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
α + γ -Chlordane (Calc.)	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.05
α-BHC	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
γ - Chlordane	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~
γ-BHC (Lindane)	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	0.056
δ-BHC	<0.01 [<0.01]	0.01	<0.009	0.009	<0.009	0.009	<0.01	0.01	µg/g	~

Sample Description	TP - 18a		TP - 19a		TP - 20a		TP - 21a			
Lab ID	1412334		1412335		1412336		1412337			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 3 Soil Stringent
2,4'-DDD	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
2,4'-DDE	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
2,4'-DDT	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
4,4'-DDD	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
4,4'-DDE	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
4,4'-DDT	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
Aldrin	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.05
DDD (Total) (Calc.)	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	3.3
DDE (Total) (Calc.)	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.26

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Sample Description	TP - 18a		TP - 19a		TP - 20a		TP - 21a			
Lab ID	1412334		1412335		1412336		1412337			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 3 Soil Stringent
DDT (Total) (Calc.)	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	1.4
Decachlorobiphenyl (Surr.)	73	N/A	82	N/A	80	N/A	89	N/A	% Rec	~
Dieldrin	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.05
Endosulfan I	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
Endosulfan I + II (Calc.)	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.04
Endosulfan II	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
Endosulfan sulfate	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
Endrin	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.04
Endrin aldehyde	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
Heptachlor	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.15
Heptachlor epoxide	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.05
Hexachlorobenzene	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.52
Hexachlorobutadiene	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.012
Hexachloroethane	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.071
Methoxychlor	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.13
Mirex	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
Oxychlordane	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
ß-BHC	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
α - Chlordane	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
α + γ -Chlordane (Calc.)	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.05
α-BHC	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
γ - Chlordane	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~
γ-BHC (Lindane)	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	0.056
δ-BHC	<0.009	0.009	<0.01	0.01	<0.009	0.009	<0.009	0.009	µg/g	~

7 Margaret Street, Garson, ON, P3L 1E1
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LEGEND

Dates: Dates are formatted as mm/dd/year throughout this report.

[rr]: After a parameter name indicates a re-run of that parameter. Sample may not have been handled according to the recommended temperature, hold time and head space requirements of the method after the initial analysis.

MDL: Method detection limit or minimum reporting limit.

[ ]: Results for laboratory replicates are shown in square brackets immediately below the associated sample result for ease of comparison.

~: In a criteria column indicates the criteria is not applicable for the parameter row.

Quality Control: All associated Quality Control data is available on request.

Exceedences: HIGHLIGHTED CELLS INDICATE THAT THE RESULT EXCEEDS A REGULATORY LIMIT. CALCULATED UNCERTAINTY ESTIMATIONS ARE NOT APPLIED FOR DETERMINING SAMPLE EXCEEDANCES.

Benzo(b)fluoranthene: Results for benzo(b)fluoranthene may include contributions from benzo(j)fluoranthene.

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