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Phase Two Environmental Site Assessment

769-789 Brant Street
and
2023-2033 Ghent Avenue (Lot B)
Burlington, Ontario

Prepared for:

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October 2020

EXECUTIVE SUMMARY

Landtek Limited (Landtek) is pleased to submit the findings of the Phase One Environmental Site Assessment (ESA) report for the property located at 769, 779 783 and 789 Brant Street and 2023, 2027, 2031 and 2033 Ghent Avenue in Burlington, Ontario. The work was initiated following authorization to proceed from Mr. Vince Molinaro of Molinaro Group (the Client) in August 2020.

The current land-use for the Site is a mixture of residential and commercial. The land use in the area includes residential and commercial land-uses. The Site is to be redeveloped into multi-tenant residential. Ontario Regulation 153/04 (O. Reg. 153/04) stipulates that for a change in land-use to a more sensitive use (i.e., from commercial to residential) a Record of Site Condition (RSC) must be prepared, filled, and approved by the Ministry of the Environment, Conservation and Parks (MECP) for the property.

This Phase Two ESA has been completed to support the preparation of a Record of Site Condition (RSC) for the Phase Two Property in accordance with O. Reg. 153/04.

SITE DESCRIPTION

The current land-use for the Phase One Property is commercial/residential mix. The Site is to be redeveloped into a multi-tenant residential property. As per a request from the Region of Halton the report was completed to meet the requirements of Ontario Regulation 153/04 (O. Reg. 153/04).

The Phase One Property is comprised of six parcels of land and is bounded by Brant Street to the east (followed by residential properties), Ghent Avenue to the south followed by commercial properties. Residential properties are located to the east and north. The Phase One Property is irregular in shape and comprises an area of approximately 6,635.2 m^2 (0.66 hectares), as shown on **Figure 1**.

SUMMARY OF WORK PLAN

In July of 2020, Landtek was retained by the Client, to prepare a Phase One ESA report for the Site, titled “Phase One Environmental Site Assessment, 769 - 789 Brant Street and 2023 - 2033 Ghent Avenue, Burlington, Ontario, dated October 2020” (Phase One ESA). The Phase One ESA was conducted to assess the environmental liability, if any, associated with the Site.

The Phase One ESA concluded the following two (2) potential contaminating activities (PCA) for the Site:

- ***PCA-A*:** Presence of fill of unknown quality imported, Schedule D **PCA#30,** at various depths across the Phase One Property from development of the Site during 1960s.

- **PCA-B:** On-Site, parking lot de-icing operated 1970s to the present on the parking lot and sidewalk areas. portion of the Site D **PCA#other.** The SAR and EC were determined by the QP to be attributable to the de-icing activities, and pursuant to O.Reg. 153/04, Section 49.1 (1), are deemed not to exceed the Standards for the purposes of Part XV.1 of the EPA.

Based on the results of the Phase One ESA, a Phase Two ESA was recommended to investigate the areas of potential environmental concern identified.

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CONCLUSIONS

The soil samples collected for analysis as described in the relevant sections of this report indicate that the native soils on-Site are not adversely impacted and concentrations do not exceed the applicable O. Reg. 153/04 Table 3 SCS.

Parameter of SAR and EC exceeded MECP Table 3 RPI Standards in the shallow soils (0.0-0.6 mbgs) located in RSC Property parking lot and sidewalk areas. The SAR and EC exceedances were determined by the QP to be attributable to the de-icing activities, and pursuant to O.Reg. 153/04, Section 49.1 (1), are deemed not to exceed the Standards for the purposes of Part XV.1 of the Environmental Protection Act. All other soil samples and parameters met the O. Reg. 153/04 Table 3 RPI Standards.

RECOMMENDATIONS

Based on the results of this Phase Two ESA, an RSC **can** be submitted based on the work completed on the Site.

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1.0 INTRODUCTION

Landtek Limited (Landtek) is pleased to submit the findings of the Phase One Environmental Site Assessment (ESA) report for the property located at 769, 779 and 783 Brant Street and 2023, 2027, 2031 and 2033 Ghent Avenue in Burlington, Ontario ("the Phase One Property" or "the Site"), as shown on **Figure 1**. The work was initiated following authorization to proceed from Mr. Vince Molinaro of Molinaro Group (the Client) in August 2020.

The current land-use for the Phase One Property is commercial/residential mix. The Site is to be redeveloped into a multi-tenant residential property. As per a request from the Region of Halton the report was completed to meet the requirements of Ontario Regulation 153/04 (O. Reg. 153/04).

O. Reg. 153/04 stipulates that for a change in land-use to a more ***sensitive*** use (i.e., from commercial to residential) a Record of Site Condition (RSC) must be prepared, filled, and acknowledged by the Ministry of the Environment, Conservation and Park (MECP). Only the portions of the Phase One Property which are changing from commercial (i.e. 769, 783 & 789 Brant) to residential require an RSC, to make the RSC portion all one parcel the RSC property will include 779 Brant Street. The portions of that are currently residential 2023 to 2033 Ghent Avenue do not require an RSC.

This Phase Two ESA has been completed to support the preparation of a Record of Site Condition (RSC) for the Phase Two Property in accordance with O. Reg. 153/04.

1.1 Site Description

The Phase One Property is currently municipal parking lot, nail salon/residences and detached and multi-unit residential homes. The was historically utilized for residential purposes and was occupied by several residential dwellings.

1.2 Property Ownership

The Phase One Property is comprised of seven parcels of land and is bounded by Brant Street to the east (followed by residential properties), Ghent Avenue to the south followed by commercial properties. Residential properties are located to the east and north. The Phase One Property is irregular in shape and comprises an area of approximately 6,600.2 m^2 (0.66 hectares),

The Phase One Property is comprised of seven parcels of land and is bounded by Brant Street to the east (followed by residential properties), Ghent Avenue to the south followed by commercial properties. Residential properties are located to the east and north. The Phase One Property is irregular in shape and comprises an area of approximately 6,635.2 m^2 (0.66 hectares), as shown on **Figure 1**.

- 769 Brant Street – municipal parking lot #64
- 779 Brant Street – residential
- 783 Brant Street – nail salon (residential house)
- 789 Brant Street – financial offices (residential house), two story full basement
- 2023 Ghent Avenue – residential
- 2027 Ghent Avenue – residential
- 2031/2033 Ghent Avenue – residential/multi-unit

The Phase One Property is currently commercial and residential use; the Site was historically utilized for residential purposes.

1.3 Applicable Site Condition Standards (SCS)

Under the O. Reg. 153/04, Part XV.1 of the Environmental Protection Act, the selection of SCS, against which laboratory results are compared, is based on a number of criteria. The SCS are published in the Ontario Ministry of the Environment, Conservation and Parks (MOE) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act dated April 15, 2011.

Landtek considered the following criteria for the selection of the applicable SCS for the Site:

- Land Use: The current land is commercial, while the intended land-use for the property is reported to be residential. The more sensitive land-use (i.e., "residential") was considered the intended land-use;
- Potable or non-potable groundwater: The Site and the Study Area are supplied with municipal water; there is a potential that potable wells may be located in the area, therefore, at this time potable groundwater standards currently apply. The municipality has not been notified a Phase Two ESA was completed using non-potable standards;
- Proximity to surface water body: The Phase Two Property *greater than* located within 30 metres (m) of a waterbody.
- Proximity to areas of natural significance or environmentally sensitive areas: The Site is not considered to be within the proximity of an environmentally sensitive area based on the information reviewed as part of the Phase One ESA completed for the Site;
- Depth to bedrock: The depth to bedrock is considered to be greater than 2 m and therefore, the Phase Two Property is not considered a shallow soil property;
- For the purposes of this assessment the pH was found to be within the allowable limits and therefore, the Site is not considered to be an environmentally sensitive area; and,
- Soil texture: Based on the results of grain size analysis completed on the Site and the subsurface conditions encountered, the soil texture is considered to be fine to medium textured as defined in O. Reg.153/04.

Based on the above information the Ontario Regulation (O. Reg.) 153/04 *Table 3 SCS Generic Site Condition Standards For Use greater that 30 m of a Waterbody in a Non-Potable Ground Water Condition and Residential/Parkland property use (O. Reg. 153/04 Table 3.SCS)* were selected as the applicable standards for the Phase Two Property.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

Geological and Hydrogeological information sources were reviewed to determine the nature of the subsurface strata on Site.

Based on previous geotechnical experience for the area and a review of the existing geological publications for the site area, Ontario Geological Survey (OGS) Map 2509: "Quaternary Geology of the Hamilton Area", the native subsurface soil conditions in the area of the site are anticipated to consist of lacustrine and outwash sand overlying glacial till deposits of the Halton Till.

According to the OGS Map M2336 "Paleozoic Geology of the Hamilton Area", the superficial geology is underlain by red shale bedrock of the Queenston Formation. Based on the information provided by the OGS Map M2034 "Bedrock Topography of the Hamilton Area", bedrock is inferred to underly the site at a depth of approximately 4 m to 6 m below ground level.

Information provided by historical borehole records from within a 100 m radius from the site, and held by the OGS, generally confirms the anticipated geological conditions beneath the site. Based on the data from records for Borehole ID 621733, located approximately 25 m northwest of the site, the superficial soil profile confirms the presence of silty sand deposits to a depth of approximately 1.2 m and overly till deposits. The till deposits extend to a depth of approximately 4.0 m. The bedrock in the area is red shale of the Queenston Formation and is identified as being at depths in the order of 4.0 m to 4.5 m below existing ground level.

2.2 Previous Investigations

In August Landtek was retained by the Client, to prepare a Phase One ESA report for the Site, titled "Phase One Environmental Site Assessment, 769-789 Brant Street and 2023-2033 Ghent Avenue Burlington, Ontario, dated September 2020" (Phase One ESA). The Phase One ESA was conducted to assess the environmental liability, if any, associated with the Site.

The Phase One ESA concluded the following two potential contaminating activities (PCA) for the Site:

- ***PCA-A*:** Presence of fill of unknown quality imported, Schedule D **PCA#30,** at various depths across the Phase One Property from development of the Site during 1960s.

- **PCA-B:** On-Site, parking lot de-icing operated 1970s to the present on the parking lot and sidewalk areas. portion of the Site D **PCA#other.** The SAR and EC were determined by the QP to be attributable to the de-icing activities, and pursuant to O.Reg. 153/04, Section 49.1 (1), are deemed not to exceed the Standards for the purposes of Part XV.1 of the EPA.

Based on the results of the Phase One ESA, a Phase Two ESA was recommended to investigate the areas of potential environmental concern identified.

3.0 SCOPE OF THE INVESTIGATION

The Phase Two ESA was carried out address the APECs identified in the Phase One ESA.

A summary of information on the PCAs, their locations and associated APECs and CPCs identified in the Phase One ESA are shown on **Figure 1** and **Figure 2** and are presented in **Table 1**.

This investigation was completed in conjunction with a geotechnical and hydrogeological assessment (reported under separate covers). As such, Landtek installed boreholes/monitoring wells across the entire Site to obtain soil samples, including near the water table and the installation of monitoring wells to obtain groundwater levels. The boreholes/monitoring wells proposed for the Phase Two ESA corresponding to each of the APECs are also presented in **Table 1** which provides the rationale for the work proposed. The investigation locations are shown on **Figure 3**.

The following is a summary of the PCA, PCA location, and associated APEC identified:

Table 1: PCA and APECs

APEC [1]	Location of APEC on the Phase One Property	PCA [2]	Location of PCA (on-site or off-site)	Contaminants of Potential Concern [3]	Media Potentially Impacted (groundwater, soil, and/or sediment) [4]
APEC-A	Parking lot. **PCA-A**	30. Importation of Fill of Unknown Quality	On-Site	Metals and As, Sb, Se, Hg, CN- EC, SAR, pH,	Soil
APEC-B	Parking lot- **PCA-B**	Other. De-icing operations	On-Site	EC, SAR	Soil

Notes:
1 - Area of Potential Environmental Concern (APEC) means the area on, in or under the Phase One Property where one or more contaminants are potentially present, as determined through the phase one environmental site assessment, including through,
(a) Identification of past or present uses on, in or under the phase one property, and
(b) Identification of potentially contaminating activity.
2 - Potentially contaminating activity (PCA) means a use or activity set out in Column A of Table 2 of Schedule D that is occurring in a Phase One Study Area.
3 - Identify all contaminants of potential concern using the Method Groups as identified in the "Protocol for in the Assessment of Properties under Part XV.1 of the Environmental Protection Act
4 - Media Potentially Impacted refers to soil, groundwater, surface water or sediment.
Metals - metals including hydrides (As, Sb, Se, Hg)
PHCs – petroleum hydrocarbons fractions F1-F4
VOCs – volatile organic compounds
BTEX – benzene, toluene, ethylbenzene and xylenes

4.0 METHODOLOGY

The field work was implemented in accordance with the Sampling and Analysis Plan (SAP). The SAP was prepared based on the APEC identified on the Site and the corresponding PCAs, CPCs, and other potentially contaminating issues. The field work for this Phase Two ESA was carried in September 2020.

This investigation was completed in conjunction with a geotechnical and hydrogeological assessment (reported under sperate covers). As such, Landtek proposed boreholes/monitoring wells on the Site to obtain soil samples, including near the water table and the installation of monitoring wells to obtain groundwater levels.

The analytical program presents information on the sampling locations, media sampled, sample depths and analytical parameters for which samples were analysed. The rationale for the sampling and analysis is presented in **Section 3.0**.

Landtek retained experienced contractors for the drilling activities. Landtek field staff, were briefed prior to commencement of the field work by the Project Manager and the Project QP_{ESA}. Field staff were responsible for supervising field activities, logging the soils during the drilling activities, monitoring the depth of drilling and installation of monitoring wells, soil and groundwater sampling, and sorting and dispatch of samples under chain of custody documentation to the contract laboratory.

4.1 Drilling

As indicated in **Section 3.0**, Landtek used borehole drilling and groundwater monitoring well installations to conduct characterisation of the soil and groundwater at the Site. The details of borehole drilling and installation of groundwater monitoring wells in the boreholes are discussed in the sections below.

4.1.2 Borehole Drilling and Monitoring

Four (2) boreholes – BH5, BH6, BH7 and BH8(geotechnical, hydrogeological and environmental) were drilled on the Site in August and September 2020; two (2) boreholes were installed as groundwater monitoring wells BH(MW)5 and BH(MW)8.

The boreholes were drilled using a track-mounted drilling rig equipped with continuous flight, solid stem augers, and were advanced to depths of maximum of 13.9 m below existing ground level. Standard Penetration Tests (SPT's) and split spoon samples were taken during drilling at selected depths. Full time supervision of drilling and soil sampling operations was carried out by a representative of Landtek.

The soil was logged by qualified Landtek personnel using the Unified Soil Classification System (USCS) Standard Practices for Description and Identification of Soils, Visual Manual Procedure (ASTM D2488-09a), noting stratigraphy, subsurface conditions, and any physical evidence of soil quality impacts. Borehole logs are presented in **Appendix B.**

4.2 Soil Sampling

Each borehole was logged and information recorded including drilling date, depth, headspace vapour concentrations, soil descriptions and measured depth to groundwater, (if encountered). Borehole soil samples were collected at discrete intervals using standard split spoon samples. Soil sampling locations were selected based on observations and field-screening (e.g., vapour readings, unique soil characteristics or visible staining).

Each soil sample taken was split into two (2) portions; one (1) portion was placed into laboratory-supplied sample jars for potential laboratory submission, and the other portion was placed in a sealable plastic bag for field-screening vapour measurement. PHC F1 and VOC samples were collected using a Terracore syringe pre-calibrated to deliver approximately 5 grams of wet weight soil and placed in laboratory-prepared methanol vials. All other soil samples, including those to be analysed for the remaining organic and metal parameters, were collected in laboratory-supplied containers.

Samples were stored on ice until delivery to ALS Environmental following standard chain-of-custody protocols. The soil samples selected for analysis were analyzed for selected COCs. The parameters included the measurement of pH which is required for the selection of the appropriate Site Condition Standards.

Borehole/monitoring well logs (**Appendix B**) provide a geologic description of overburden samples and the depths at which they were collected during the investigation.

4.3 Field Screening Measurements

Field-screening vapour measurements were conducted using an RKI Eagle 2 portable instrument fitted with two (2) sensors: one (1) for detection of hydrocarbons/combustibles and the other a photoionization detector (PID) for detection of volatile organic compounds. The instrument was supplied by Landtek and was calibrated prior to use with hexane and isobutylene span gases.

Each soil sample taken for screening was placed in a sealable plastic bag for field-screening vapour measurement. Prior to taking the field-screening vapour readings, the soil within the sealed plastic bags was agitated and allowed to equilibrate for a minimum of 30 minutes at 15°C or greater. The vapour measurements were collected by inserting the collection tube of the Eagle 2 into the plastic bag.

The frequency of field screening measurements during the drilling investigation was approximately 0.6 m (~2 ft) intervals.

4.4 Groundwater: Monitoring Well Installation

Two groundwater monitoring wells BH(MW)5, and BH(MW)8 were installed on the Site, to a maximum drilling depth of approximately 13.9 m bgs.

The monitoring wells were constructed using polyvinyl chloride (“PVC”) well screens (3m lengths) and PVC riser pipe finished at grade. The well screens were installed in an attempt to straddle the apparent water table (if encountered). The elevations of the ground surface and the top of the groundwater monitoring wells were determined via an elevation survey (as discussed in **Section 4.7**). All wells were monument or flush mounted protective steel caps/casings.

Monitoring wells were installed in accordance with O. Reg. 903, as amended, for the purposes of assessing groundwater quality at the Site. Monitoring wells were constructed using 51 mm inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) pipe. The well screens were installed to attempt to straddle the apparent water table (if encountered). All sections were machined with fine threaded flush joints to avoid the use of PVC glue and primer for connections as these bonding materials have the potential of introducing traces of organic contaminants.

The screened sections of PVC pipe were manufactured with No. 10 (0.25 mm) machined slotting. Solid lengths of PVC pipe were used above the screened interval (i.e., riser pipe). Cleaned silica sand (10/20 size) was placed around the screen to a minimum level of 0.10 m above the top of the screen. Bentonite (hydrated with tap water) was used to backfill the borehole above the sand to create a well seal. Monitoring wells were designed to be installed with screens completed in discrete lithology units to investigate potential groundwater impacts within these units. Groundwater monitoring wells were finished with locking J-Plug caps and completed using flushmount protective casings.

Monitoring well locations are shown on **Figure 3**. Monitoring well construction details are presented in the borehole logs presented in **Appendix A**.

4.5 Groundwater Sampling

4.5.1 Monitoring Well Development

Prior to sampling, monitoring wells were developed using a foot-valve inertial pump technique to minimize sediment in the well. Well development was considered complete when a minimum of three (3) well volumes had been purged or when the well was purged to dryness at least three (3) times after a minimum 90% water level recovery.

4.5.2 Water Level Measurements

The depth to groundwater and total well depths were measured using a clean and calibrated electronic interface probe. The relative elevations were calculated by subtracting the measured groundwater depth from the surveyed top of the casing elevation.

To prevent cross-contamination, the interface probe was cleaned with a laboratory-grade phosphate-free detergent and distilled water solution, before each use and in between each well. All water level measurements were taken from the top of the well riser pipe.

4.5.3 Groundwater Sample Collection

As discussed on **Section 2.2**, based on the results of the Phase One ESA completed for the Site APECs were identified; however, the identified media impacted did not include groundwater.

The sample was placed into laboratory-supplied containers and stored on ice in coolers for transport and delivery to ALS Environmental under a chain of custody protocol.

4.6 Analytical Testing

Laboratory analysis was carried out by ALS Environmental. The parameters for which samples were analysed were selected based on the SAP and field conditions encountered. The laboratory is accredited by the Canadian Association for Laboratory Accreditation (CALA). The methods used

for analysis were consistent with those stipulated in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. The Analytical Program and laboratory certificates are provided in **Appendix B**.

4.7 Quality Assurance and Quality Control (QA/QC) Measures

All field work was performed following Landtek's Standard Operating Procedures (SOPs), which were developed in accordance with O. Reg. 153/04, as amended and included the following:

- Appropriate measures to avoid cross contamination and carry out decontamination where necessary, collection of all samples in laboratory provided containers, and placement of containers in coolers containing ice;

- The SAP, field conditions, as documented on the borehole results of field screening, were reviewed to confirm that the appropriate samples were selected for laboratory analysis and that samples were scheduled for analysis of the required chemical parameters;

- The samples listed on the chain-of-custody form were cross-checked with the samples being shipped to the contract laboratory. A further check was carried out to ensure that the relevant analytical parameters had been requested for analysis;

- All coolers contained ice packs along with the sample containers to maintain the minimum temperature required on arrival at the contract laboratory;

5.0 REVIEW AND EVALUATION

5.1 Geology

Geological and Hydrogeological information sources were reviewed to determine the nature of the subsurface strata on Site.

The Ontario Geology Survey has a web application, OGS Earth, which provides geoscience data, collected by the Mines and Minerals division, which can be viewed using user-friendly geographic information programs such as Google Earth. The Surficial Geology and Bedrock Geology applications were reviewed to determine the geologic characteristics mapped at the Site. A review of this data as well as MOE water well records indicate that the predominant Quaternary geology at the Site likely consists of deposits of silt and silty clay overlying limestone, dolostone, siltstone and shale bedrock of the Queenston Formation.

The detailed borehole logs are presented in **Appendix A**, with the ground conditions encountered by the boreholes discussed in the following sections.

Existing Pavement Structure

All boreholes were drilled in the existing asphalt pavement areas at the site, with asphalt thicknesses of approximately 50 mm. Pavement granular material was encountered underlying the asphalt and consists of approximately 200 mm of crushed limestone (gravel sizes).

Fill Materials

Fill materials were encountered in all boreholes underlying the pavement granular material and extend of depths of between 1.5 m (boreholes BH7 and BH8) and 3.0 m (borehole BH5). The fill materials generally comprised primarily of sand, silt, and clay. The fill materials also include varying fractions of gravel.

Clayey Silt Till

Clayey silt till was encountered in all boreholes underlying the fill material and extends to depths of between approximately 3.5 m and 4.0 m below existing pavement surface. The till contains traces of gravel and red shale and is brownish grey in colour.

Bedrock

Red shale of the Queenston Formation was encountered in all boreholes underlying the till deposits at depths of between approximately 3.5 m and 4.0 m below existing pavement surface.

The shale is generally weak and highly to slightly weathered on initial contact, being recovered and behaving as a "*residual soil*" and becomes more competent with depth.

5.2 Groundwater: Elevations and Flow Direction

Based on the Site geology information presented in **Section 5.1**, the main hydrogeological unit that was investigated at the Phase Two Property was the shallow groundwater table, present within the clayey silt till on the Site.

The measured groundwater elevations measured in September 2020, as summarized below in **Table 2**.

Table 2: Depth to Groundwater and Groundwater Elevation Summary

Location	Date	Depth to Groundwater (meters bgs)	Relative Elevation of Ground Surface (mASL)	Relative Elevation of Groundwater (mASL)
BH(MW)5	21-Sep-20	2.33	91.77	89.44
	24-Sep-20	2.20		89.57
BH(MW)8	21-Sep-20	2.34	91.74	89.40
	24-Sep-20	1.85		89.89

The inferred groundwater flow direction is towards the east towards Hager Creek.

5.3 Soil: Field Screening

Results of field screening ranged from 0 ppm (non-detect) (various) to 5ppm, measured at BH(MW)5.

5.4 Soil Quality

The results of the laboratory analysis of the soil samples analysed have been compared with the Table 3 SCS (residential, coarse textured soils) and are presented in **Table 3**. Laboratory certificates are presented in **Appendix B**.

The schedule of chemical testing and the summary of test results for soils are shown in **Table 3**. Samples were selected based on location and depth of potential areas of concern as well as olfactory or vapour reading indicators, where possible.

Table 3: Schedule of Chemical Analyses and Summary of Test Results for Soils

Sample	Depth (mbgs)	Analyses	Exceedances*		
			Parameter	Sample Results (µg/g)	Table 2 SCS** (µg/g)
BH5 SS1	0 to 0.6	metals & inorganic	SAR	**5.03**	5.0
BH6 SS1	0 to 0.6	metals & inorganic	SAR	**12.0**	5.0
BH7 SS1	0 to 0.6	metals & inorganic	EC SAR	**1.96** **48.1**	0.7 5.0
BH8 SS1	0 to 0.6	metals & inorganic	EC SAR	**2.29** **10.6**	0.7 5.0
DUP-1 (field duplicate BH6 SS1)	0 to 0.6	metals & inorganic	--	**5.1**	5.0

- SAR and EC exceedances attributable to the de-icing activities, O.Reg. 153/04, Section 49.1 (1), are deemed not to exceed the Standards

** Sample results compared with *Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act', April 2011. O. Reg. 153/04 Table 3 RPI land use standards*

RPI – Residential/Parkland/Institutional land-uses
EC – electrical conductivity
SAR- sodium adsorption ratio

SAR and electrical conductivity are related to the application of de-icing and salting substances on of parking lot and the adjacent roadways located immediately adjacent to the Phase One Property, to ensure that these roadways and parking lot are kept free of snow and ice during the winter months.

Parameter of SAR (5.03 to 48.1) and EC (1.96 to 2.29 mS/cm) exceeded MECP Table 3 RPI Standards in the shallow soils (0.0-0.6 mbgs) located in RSC Property parking lot and sidewalk areas. The SAR and EC exceedances were determined by the QP to be attributable to the de-icing activities, and pursuant to O.Reg. 153/04, Section 49.1 (1), are deemed not to exceed the Standards for the purposes of Part XV.1 of the Environmental Protection Act. All other soil samples and parameters met the O. Reg. 153/04 Table 3 RPI Standards.

5.4 Groundwater Quality

Groundwater was determined by the QP to be not a medium for potentially contaminating activities and therefore did not generate a corresponding APEC to the Site.

5.5 QA/QC Results

The following pairs of duplicate samples were submitted to the laboratory for analysis of selected COCs. Duplicates: Soil and groundwater duplicate samples were analysed for a range of COCs.

The Relative Percent Differences (RPD) were calculated between the parent and duplicate samples using the following formula:

$$\left|\frac{C_o - C_s}{(C_o + C_s)/2}\right| \times 100$$

Where:
Co = concentration of the original/parent sample; and,
Cs = concentration of the duplicate sample.

Soil RPDs ranged from 0% to 20%, while soil RPDs ranged from 25% to 0%. Based on the absolute concentrations and the nature of the matrix, the RPD results between all the primary and duplicate samples analysed are considered to be acceptable.

In addition to the field quality control samples, the analytical laboratory has its internal QA/QC programs to verify the acceptance of the data generated. The results of the laboratory QA/QC program are presented in the Laboratory Certificate of Analysis provided in **Appendix B**.

The overall QA/QC results are considered to be acceptable and support the reliability of the results of the field samples analysed.

6.0 RESULTS AND CONCLUSIONS

6.1 Soil Quality

The soil samples collected for analysis as described in the relevant sections of this report indicate that the soils on-Site are not adversely impacted and concentrations do not exceed the applicable O. Reg. 153/04 Table 3 SCS.

Parameter of SAR and EC exceeded MECP Table 3 RPI Standards in the shallow soils (0.0-0.6 mbgs) located in RSC Property parking lot and sidewalk areas. The SAR and EC exceedances were determined by the QP to be attributable to the de-icing activities, and pursuant to O.Reg. 153/04, Section 49.1 (1), are deemed not to exceed the Standards for the purposes of Part XV.1 of the Environmental Protection Act. All other soil samples and parameters met the O. Reg. 153/04 Table 3 RPI Standards.

6.2 Phase Two Property Certification

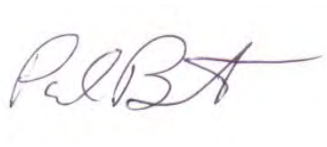
Based on the results of this Phase Two ESA, an RSC can be submitted based on the work completed on the Site.

6.3 Signatures

We trust this report is satisfactory for your purposes. If you have any questions regarding our submission, please do not hesitate to contact this office.

Yours truly,

LANDTEK LIMITED



Paul Blunt, P.Eng., QP_{ESA}

7.0 LIMITATIONS

This report was prepared for the exclusive use of the Client. It is intended to provide an assessment of the soil and groundwater conditions with respect to potential contamination prevailing at the time of the assessment. Any use of this document by any party other than the Client is at the sole risk of such user. Any reliance upon this report by any party other than the Client requires the prior written approval of Landtek Limited.

Landtek does not provide any warranty, expressed or implied, that this assessment has identified all potential contaminants at the Site or that the Site is free from any and all contamination from past or current practices other than noted, nor that all issues of environmental compliance have been addressed. The assessment of environmental conditions and potential hazards at the Site has been made using the historical information that supported the preparation of the Phase Two Environmental Site Assessment, on which the scope of this investigation was based, as well as the results of chemical analysis of soil and groundwater samples collected at the tested locations at the time of this investigation. The report must be considered in its entirety and no assurance is made regarding changes in conditions subsequent to the time of investigation.

The Site conditions have been inferred based on conditions observed at a limited number of sampling locations in accessible areas; however, it should be noted that conditions between and beyond sampling locations may vary. In addition, the assessment is dependent upon the accuracy of the analytical data generated through sample analysis and is limited to determining the presence of contaminants for which analysis have been conducted. Findings derived from this Phase Two Environmental Site Assessment are limited and Landtek Limited cannot state that areas of the Site, or neighbouring properties, or portion thereof, are unaffected by the contaminants of concern. The Client still bears risk that such contaminants may be present on or may migrate to or off the property after the time of this investigation. Landtek Limited is not responsible for any follow-up action and /or costs.

In evaluating the Property, Landtek Limited has relied in good faith on information provided by individuals and companies noted in this report. We assume that the information provided is factual and accurate and Landtek Limited has not independently confirmed any such information.

8.0 REFERENCES

- Ontario Regulation 153/04, as amended by O. Reg. 511/09;
- Provincial Topographic Map – Ontario Base Mapping Data, Ontario Ministry of Natural Resources, 2010;
- Area of Natural and Scientific Interest Map, Ontario Ministry of Natural Resources, March 2017;
- The Surficial Geology of Southern Ontario Map, Ontario Geological Survey, 2010;
- Physiography of Southern Ontario Map, Ontario Geological Survey, 2007;
- *Bedrock Geology of Ontario, Southern Sheet*; Ontario Geological Survey, Map 2544, Scale 1: 1,000,000, 1991; and,
- *Quaternary Geology of Southern Ontario, Southern Sheet*, Map 2556, Scale 1:1,000,000, Ministry of Northern Development and Mines, Queen's Printer for Ontario, 1991.

Websites

http://maps.google.ca/maps
http://map.hamilton.ca/iMapper.aspx
https://library.mcmaster.ca/maps/airphotos/
https://www.ontario.ca/page/make-natural-heritage-area-map
http://www.giscoeapp.lrc.gov.on.ca/matm/Index.html?site=Make_A_Topographic_Map&viewer=MATM&locale=en-US

http://www.gisapplication.lrc.gov.on.ca/services/COSINE/Remote/095a080b_e87a_43a8_8579_dba14759aa7d.html?print=true

LIMITATIONS OF THE REPORT

This report was prepared for the sole use of the Client and their legal counsel and is intended to provide an evaluation of the current environmental conditions at the subject site. Any use that a third party makes of this report, or decisions made based on it, are the responsibility of the third party. Landtek Limited accepts no responsibility for damages of any type suffered by the third party as a result of actions or decisions made based on this report.

The conclusions and recommendations given in this report are based on information determined at the borehole locations. Subsurface conditions, ground water conditions and contaminant concentrations between and beyond the boreholes may be different from those encountered at the borehole locations, and conditions may become apparent during construction that could not be detected or anticipated at the time of the subsurface investigation. It is recommended practice that Landtek be retained during construction to confirm that the subsurface conditions throughout the site are consistent with the conditions encountered in the boreholes.

The conclusions and recommendations given in this report are based on information obtained from various sources noted, subsurface investigation, and a visual examination of the site. It is based on the conditions of the subject property at the time of the field investigation supplemented by a review of historical information to assess environmental conditions at the site reported. Landtek assumes that information provided by others is factual and accurate, and accepts no responsibility for any deficiency, misstatement, of inaccuracy in this report from information provided by others.

This assessment should not be considered a comprehensive audit that outlines all environmental liabilities or eliminates all risks of encountering environmental problems in some portions of the site. There is no warranty expressed or implied by this report concerning the status of the study site.

The report has been prepared in accordance with generally accepted environmental study and/or engineering practices. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.

The objective of this report was to assess the environmental conditions at the site, with respect to existing environmental regulations within the applicable jurisdiction. Compliance of past owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services.

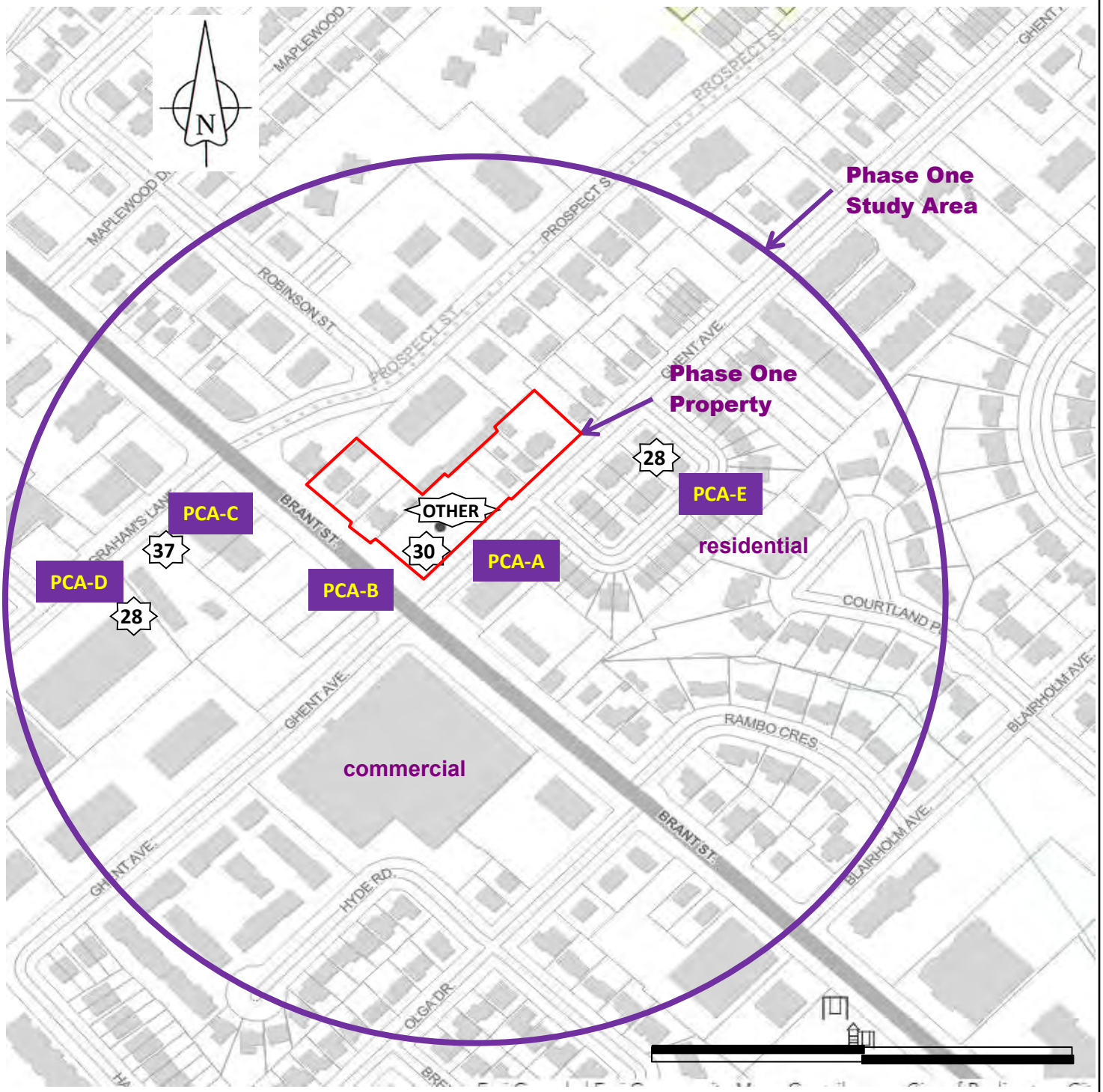
The site history performed herein relies on information supplied by others, such as local, provincial and federal agencies as other consultants. No attempt has been made to independently verify the accuracy of such information, unless specifically noted in our report.

Should the site conditions change or additional background data become available after this report has been issued, Landtek Limited should be made aware of the information and be given an opportunity to reassess the findings if it relates to environmental concerns.

Qualifications

Investigative assessment work was conducted by Ms. Nicole Harper, H.B.Sc., who has over 10 years of related environmental assessment experience including completion of numerous Phase One and Two ESA's and Site Remediation activities.

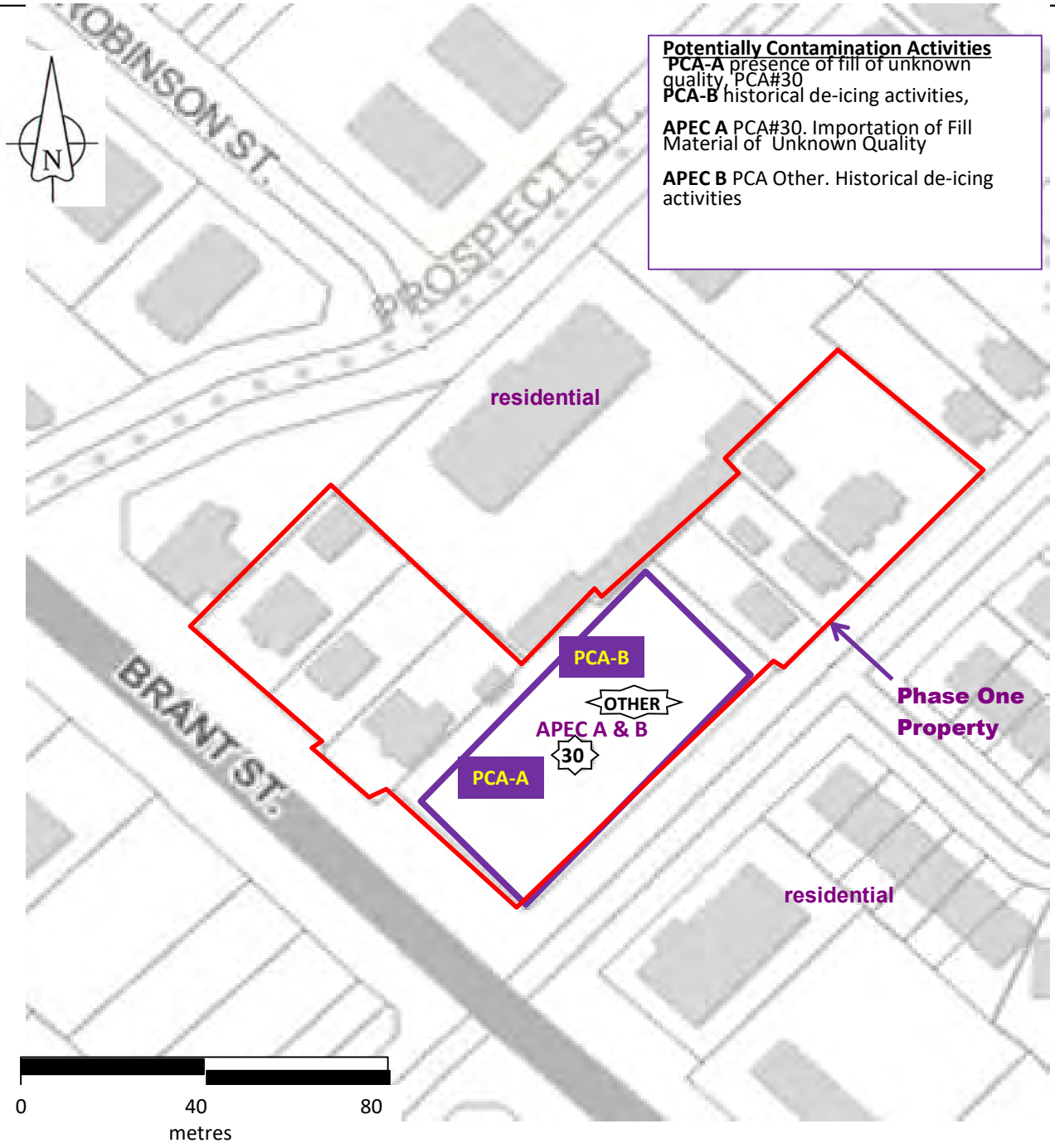
Mr. Paul J Blunt, P.Eng. is a Senior Environmental Engineer with Landtek and has conducted and supervised Phase One ESAs for more than 20 years. Mr. Blunt obtained a B.Sc. in Chemical Engineering from University of Windsor in 1987 and is a licensed Professional Engineer in the Province of Ontario. Mr. Blunt has conducted and supervised Phase One Environmental Site Assessments over 1500 environmental site assessments on a variety of agricultural, residential, industrial, commercial and industrial properties. Mr. Blunt also has extensive experience in conducting Phase Two Environmental Site Assessments and is therefore familiar with how to assess potential concerns identified during the Phase One ESA. Mr. Blunt has conducted and supervised environmental projects throughout Canada, the United States and Australia.



Potentially Contamination Activities

PCA-A On-Site, presence of fill of unknown quality, PCA#30
PCA-B On-Site, historical de-icing activities, PCA Other

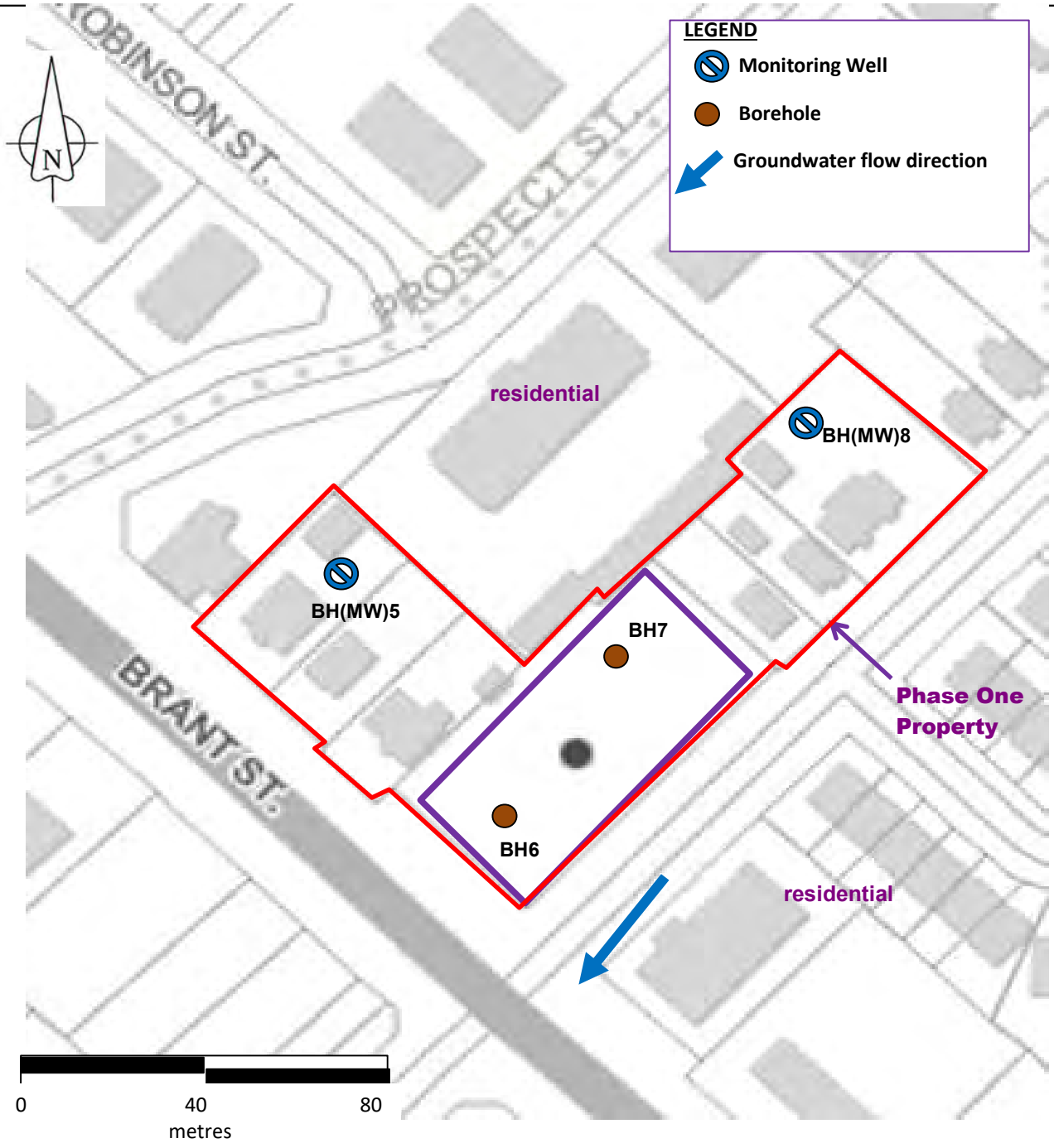
LANDTEK LIMITED	
Scale:	Date: September 2020
Project:	Phase One ESA 769-789 Brant & 2023-2033 Ghent Burlington, Ontario
Title:	Dwg 1 - Site Location Plan
Project No. 20254B	



Potentially Contamination Activities

PCA-A On-Site, presence of fill of unknown quality, PCA#30
PCA-B On-Site, historical de-icing activities, PCA Other

LANDTEK LIMITED	
Scale:	Date: September 2020
Project:	Phase One ESA 769-789 Brant & 2023-2033 Ghent Burlington, Ontario
Title:	Dwg 1 - Site Location Plan
Project No. 20254B	



LANDTEK LIMITED	
Scale:	Date: September 2020
Project:	Phase Two ESA 769-789 Brant & 2023-2033 Ghent Ave Burlington, Ontario
Title:	Dwg 3 - Borehole and Monitoring Wells
Project No. 20254B	

APPENDIX A

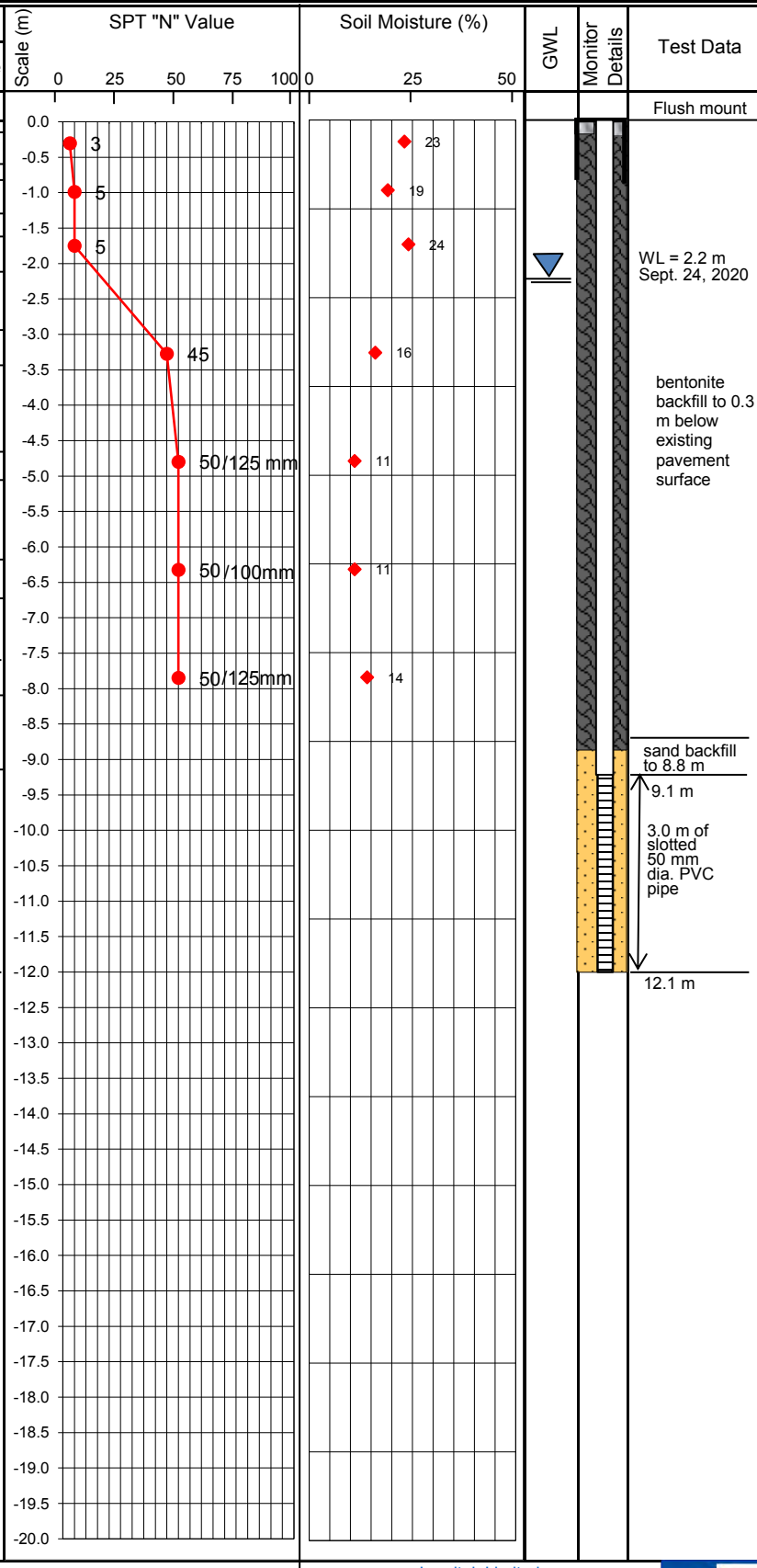
BORHOLE LOGS

Landtek Limited

BH/MW 5

Project No.:	20255B	Drill Date:	September 2, 2020
Project:	Hydrogeological Investigation	Drill Method:	[ ] solid stem [x] hollow stem [x] Coring
Location:	Brant Street and Ghent Avenue, Burlington, Ontario	Datum:	Geodetic (Approximate)

Material Description	Elev. Depth	Sample No.	Sample Type	Test Data
Ground Surface	91.8			Flush mount
±50 mm of asphalt ± 200 mm of crushed limestone **FILL:** silty clay, some gravel, brown, firm, very moist, trace black mottling	0.0	1	SS	
		2	SS	
		3	SS	
	88.8			
CLAYEY SILT TILL: trace gravel, trace shale, brownish grey, very stiff, moist	3.0	4	SS	
	87.8			
SHALE BEDROCK (Queenston Formation) very weak to weak, highly weathered, red, moist	4.0	5	SS	
		9	SS	
7.6 m to 9.3 m: wet		10	SS	
	82.5			
highly weathered to fresh, red, strong Recovery = 100 %; RQD = 60 % ∂ = 25.5 kN/m³; UCS strength = 61.9 MPa	9.3	CORE RUN #1	63 mm Dia. Core	
	81.1			
fresh, red and grey, medium strong Recovery = 100 %; RQD = 80 % ∂ = 25.5 kN/m³; UCS strength = 47.8 MPa	10.7	CORE RUN #2	63 mm Dia. Core	
	79.7			
BOREHOLE TERMINATED	12.1			



Notes:
1. Groundwater encountered at 7.6 m during drilling
2. Water level reading: 2.20 m on September 24, 2020

PP = pocket penetrometer TCV = total combustible vapour BRD = bulk relative density
PL = plastic limit LL = liquid limit PI = plasticity index FV = field vane LV = lab vane VS = vane sensitivity

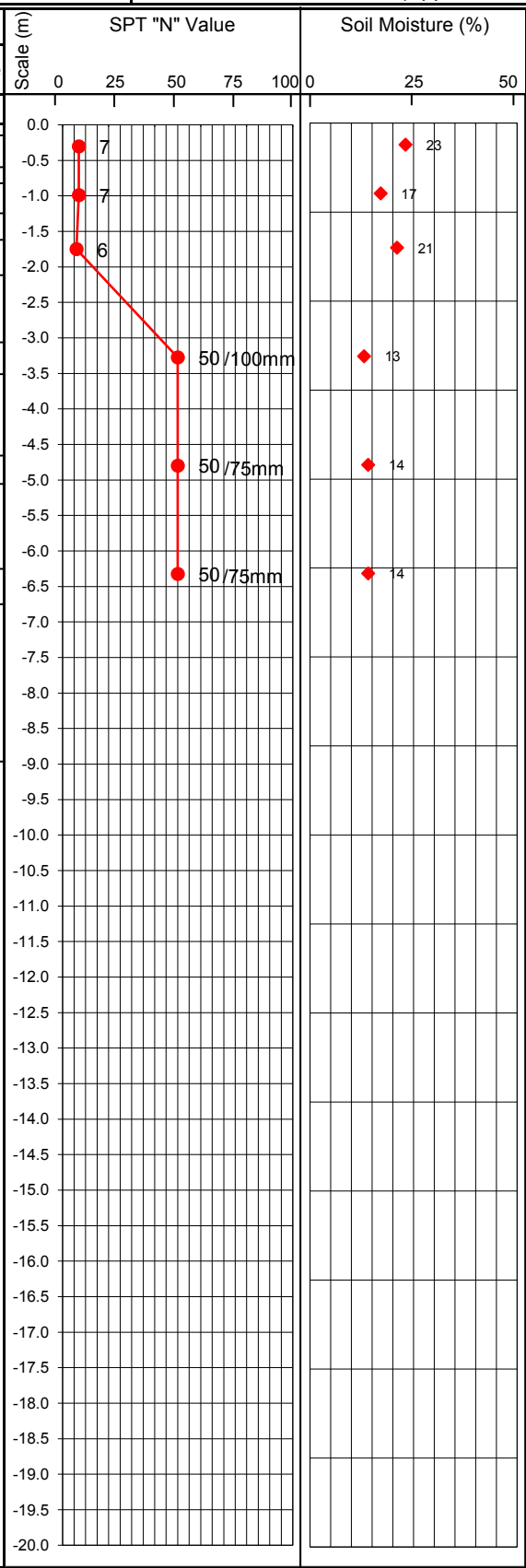
Landtek Limited
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Hamilton, Ontario, Canada, L8W 2E1
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www.landteklimited.com

Landtek Limited

BH 6

Project No.:	20255B	Drill Date:	September 2, 2020
Project:	Hydrogeological Investigation	Drill Method:	[ ] solid stem [x] hollow stem [ ] Coring
Location:	Brant Street and Ghent Avenue, Burlington, Ontario	Datum:	Geodetic (Approximate)

Material Description	Symbol	Elev. / Depth	Samples No.	Samples Type	Test Data
Ground Surface		91.7			
±50 mm of asphalt		0.0	1	SS	
± 200 mm of crushed limestone					
FILL: sand, brown, loose, moist		90.5	2	SS	
FILL: silt, dark brown, loose, moist, trace iron staining		1.2	3	SS	
		89.2			
CLAYEY SILT TILL: trace gravel, trace shale, brownish grey, very stiff, moist		2.5	4	SS	
		88.2			
SHALE BEDROCK (Queenston Formation) very weak to weak, highly weathered, red, moist		3.5	5	SS	
4.5 m to 8.0 m: wet			6	SS	
8.0 m to 9.1 m: slightly weathered to fresh		82.6			
AUGER REFUSAL **BOREHOLE TERMINATED**		9.1			



Notes: 1. Groundwater encountered at 4.5 m depth during drilling

PP = pocket penetrometer TCV = total combustible vapour BRD = bulk relative density
PL = plastic limit LL = liquid limit PI = plasticity index FV = field vane LV = lab vane VS = vane sensitivity

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BH 7

Project No.:	20255B	Drill Date:	August 31, 2020
Project:	Hydrogeological Investigation	Drill Method:	[ ] solid stem [x] hollow stem [ ] Coring
Location:	Brant Street and Ghent Avenue, Burlington, Ontario	Datum:	Geodetic (Approximate)

Material Description	Symbol	Elev. / Depth	Samples No.	Samples Type	Scale (m)	SPT "N" Value	Soil Moisture (%)	GWL	Monitor Details	Test Data
Ground Surface		91.7								
±50 mm of asphalt ± 200 mm of crushed limestone **FILL:** clayey silt, black, firm to stiff, moist		0.0 90.2	1 2	SS SS		4, 13	32, 17			
CLAYEY SILT TILL: trace gravel, trace shale, brownish grey, very stiff, moist		1.5 88.2	3 4	SS SS		19, 50/75mm	19, 14			
SHALE BEDROCK (Queenston Formation) very weak to weak, highly weathered, red, moist 7.0 m to 7.3 m: wet		3.5 84.4	5	SS		50/75mm	5			
AUGER REFUSAL **BOREHOLE TERMINATED**		7.3								

SPT "N" Value: 0 25 50 75 100 | Soil Moisture (%): 0 25 50 | Scale (m): 0.0 -0.5 -1.0 -1.5 -2.0 -2.5 -3.0 -3.5 -4.0 -4.5 -5.0 -5.5 -6.0 -6.5 -7.0 -7.5 -8.0 -8.5 -9.0 -9.5 -10.0 -10.5 -11.0 -11.5 -12.0 -12.5 -13.0 -13.5 -14.0 -14.5 -15.0 -15.5 -16.0 -16.5 -17.0 -17.5 -18.0 -18.5 -19.0 -19.5 -20.0

Notes: 1. Groundwater encountred at 7.0 m depth during drilling

PP = pocket penetrometer TCV = total combustible vapour BRD = bulk relative density
PL = plastic limit LL = liquid limit PI = plasticity index FV = field vane LV = lab vane VS = vane sensitivity

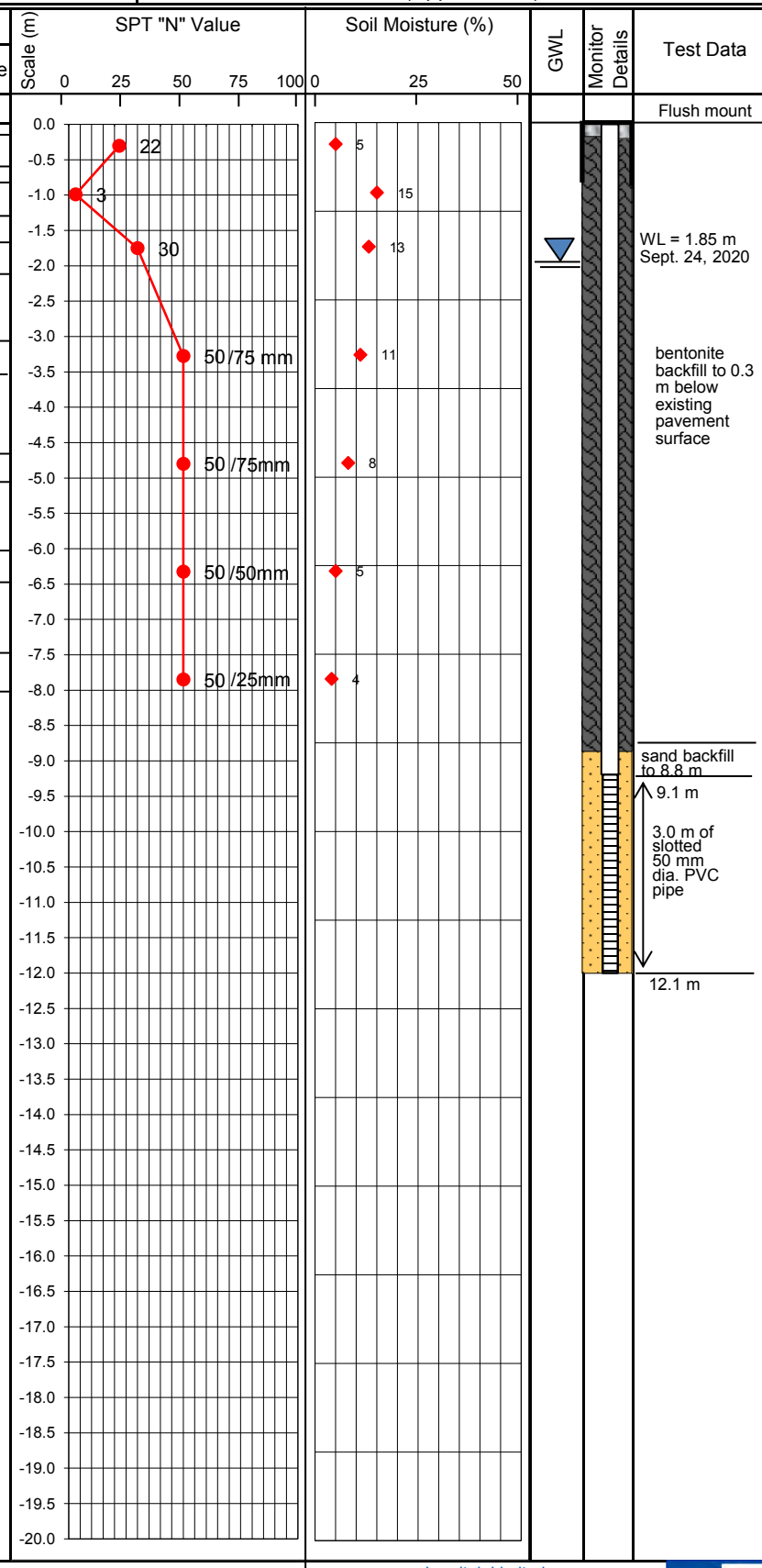
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www.landteklimited.com

Landtek Limited

BH/MW 8

Project No.:	20255B	Drill Date:	August 31, 2020
Project:	Hydrogeological Investigation	Drill Method:	[ ] solid stem [x] hollow stem [ ] Coring
Location:	Brant Street and Ghent Avenue, Burlington, Ontario	Datum:	Geodetic (Approximate)

Material Description	Elev. Depth	Sample No.	Sample Type	Test Data
Ground Surface	91.7			Flush mount
±50 mm of asphalt ± 200 mm of crushed limestone	0.0	1	SS	
FILL: clayey silt and silt, dark brown, loose to compact, moist	90.2	2	SS	
CLAYEY SILT TILL: trace gravel, trace shale, brownish grey, very stiff, wet	1.5	3	SS	
	88.2	4	SS	
SHALE BEDROCK (Queenston Formation) very weak to weak, highly weathered, red, moist	3.5	5	SS	
		6	SS	
	83.7	7	SS	
slightly weathered to fresh, red and grey, medium strong	8.0			
	79.6			
BOREHOLE TERMINATED	12.1			



Notes:
1. Wet soils encountred at 1.5 m depth during drilling
2. Water level reading: 1.85 m on September 24, 2020

PP = pocket penetrometer TCV = total combustible vapour BRD = bulk relative density
PL = plastic limit LL = liquid limit PI = plasticity index FV = field vane LV = lab vane VS = vane sensitivity

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APPENDIX C

LABORATORY CERTIFICATES OF ANALYSES
Including Laboratory QA/QC Data

LANDTEK LIMITED
ATTN: Nicole Harper
205 Nebo Road
Unit 3
Hamilton ON L8W 2E1

Date Received: 09-SEP-20
Report Date: 16-SEP-20 10:07 (MT)
Version: FINAL

Client Phone: 905-383-3733

Certificate of Analysis

Lab Work Order #: L2500719

Project P.O. #: 20253
Job Reference: 20253
C of C Numbers: 17-844944
Legal Site Desc:

Aaron Payne
Account Manager

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

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Soil-Res/Park/Inst. Property Use (Fine)						
L2500719-1	BH8 SS1	Physical Tests	Conductivity	2.29	0.7	mS/cm
		Saturated Paste Extractables	SAR	10.6	5	SAR
		Metals	Cadmium (Cd)	1.27	1.2	ug/g
L2500719-2	BH7 SS1	Physical Tests	Conductivity	1.96	0.7	mS/cm
		Saturated Paste Extractables	SAR	48.1	5	SAR
L2500719-3	MW9 SS1	Physical Tests	Conductivity	2.71	0.7	mS/cm
		Saturated Paste Extractables	SAR	20.9	5	SAR
L2500719-5	MW11 SS1	Physical Tests	Conductivity	1.58	0.7	mS/cm
L2500719-6	BH6 SS1	Saturated Paste Extractables	SAR	12.0	5	SAR
L2500719-7	MW5 SS1	Saturated Paste Extractables	SAR	5.03	5	SAR

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

ANALYTICAL REPORT

Physical Tests - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2500719-1	L2500719-2	L2500719-3	L2500719-4	L2500719-5	L2500719-6	L2500719-7	L2500719-8	L2500719-9
				Sample Date	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20
				Sample ID	BH8 SS1	BH7 SS1	MW9 SS1	MW10 SS1	MW11 SS1	BH6 SS1	MW5 SS1	MW4 SS1	BH3 SS1
Conductivity	mS/cm	0.7	-		2.29	1.96	2.71	0.132	1.58	0.614	0.258	0.230	0.243
% Moisture	%	-	-		4.80	12.1	17.8	12.4	19.6	17.6	17.3	11.5	9.86
pH	pH units	-	-		11.50	7.89	7.45	6.99	7.29	7.59	7.30	7.44	7.34

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

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

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

ANALYTICAL REPORT

Physical Tests - SOIL

			Lab ID	L2500719-10	L2500719-11
			Sample Date	31-AUG-20	31-AUG-20
			Sample ID	BH2 SS1	MW1 SS1
Analyte	**Unit**	**Guide Limits #1**	**#2**		
Conductivity	mS/cm	0.7	-	0.217	0.149
% Moisture	%	-	-	11.0	6.50
pH	pH units	-	-	7.23	7.39

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

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

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

ANALYTICAL REPORT

Cyanides - SOIL

		Guide Limits									
	Lab ID			L2500719-1	L2500719-2	L2500719-3	L2500719-4	L2500719-5	L2500719-6	L2500719-7	L2500719-8	L2500719-9
	Sample Date			31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20
	Sample ID			BH8 SS1	BH7 SS1	MW9 SS1	MW10 SS1	MW11 SS1	BH6 SS1	MW5 SS1	MW4 SS1	BH3 SS1
Analyte	Unit	#1	#2									
Cyanide, Weak Acid Diss	ug/g	0.051	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

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

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

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

ANALYTICAL REPORT

Cyanides - SOIL

		Guide Limits			
Lab ID				L2500719-10	L2500719-11
Sample Date				31-AUG-20	31-AUG-20
Sample ID				BH2 SS1	MW1 SS1
Analyte	**Unit**	**#1**	**#2**		
Cyanide, Weak Acid Diss	ug/g	0.051	-	<0.050	<0.050

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

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

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

ANALYTICAL REPORT

Saturated Paste Extractables - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2500719-1	L2500719-2	L2500719-3	L2500719-4	L2500719-5	L2500719-6	L2500719-7	L2500719-8	L2500719-9
				Sample Date	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20
				Sample ID	BH8 SS1	BH7 SS1	MW9 SS1	MW10 SS1	MW11 SS1	BH6 SS1	MW5 SS1	MW4 SS1	BH3 SS1
SAR	SAR	5	-		10.6 SAR:M	48.1 SAR:M	20.9	0.62	3.60	12.0	5.03	4.43 SAR:M	3.53
Calcium (Ca)	mg/L	-	-		77.6	4.34	29.0	8.46	116	4.83	5.30	5.60	8.81
Magnesium (Mg)	mg/L	-	-		<0.50	<0.50	5.32	2.20	15.0	1.88	0.62	<0.50	0.72
Sodium (Na)	mg/L	-	-		340	364	466	7.87	155	123	45.9	38.1	40.5

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

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

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

ANALYTICAL REPORT

Saturated Paste Extractables - SOIL

		Guide Limits			
Lab ID				L2500719-10	L2500719-11
Sample Date				31-AUG-20	31-AUG-20
Sample ID				BH2 SS1	MW1 SS1
Analyte	**Unit**	**#1**	**#2**		
SAR	SAR	5	-	0.11	0.22
Calcium (Ca)	mg/L	-	-	26.4	10.8
Magnesium (Mg)	mg/L	-	-	3.49	2.52
Sodium (Na)	mg/L	-	-	2.27	3.07

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

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

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

ANALYTICAL REPORT

Metals - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2500719-1	L2500719-2	L2500719-3	L2500719-4	L2500719-5	L2500719-6	L2500719-7	L2500719-8	L2500719-9
				Sample Date	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20
				Sample ID	BH8 SS1	BH7 SS1	MW9 SS1	MW10 SS1	MW11 SS1	BH6 SS1	MW5 SS1	MW4 SS1	BH3 SS1
Antimony (Sb)	ug/g	7.5	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	-		6.8	6.6	5.9	7.9	3.8	8.0	5.5	4.2	7.8
Barium (Ba)	ug/g	390	-		42.1	117	142	154	89.0	99.3	149	68.7	97.2
Beryllium (Be)	ug/g	5	-		<0.50	0.82	0.93	1.03	0.70	0.60	0.82	0.64	0.53
Boron (B)	ug/g	120	-		9.0	12.9	10.3	11.3	8.2	7.8	11.0	7.1	7.1
Boron (B), Hot Water Ext.	ug/g	1.5	-		0.33	0.18	0.46	1.14	0.37	0.59	0.35	0.38	0.40
Cadmium (Cd)	ug/g	1.2	-		1.27	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	160	-		14.1	23.8	26.9	28.2	19.3	18.8	23.2	18.0	17.3
Cobalt (Co)	ug/g	22	-		3.8	12.7	12.2	12.8	8.3	8.2	11.3	9.4	6.6
Copper (Cu)	ug/g	180	-		15.9	44.7	32.4	36.7	27.4	24.2	29.5	27.3	35.4
Lead (Pb)	ug/g	120	-		24.2	9.8	12.3	28.2	9.5	29.6	12.6	12.9	116
Mercury (Hg)	ug/g	1.8	-		0.0294	0.0161	0.0327	0.0668	0.0257	0.0500	0.0310	0.0273	0.220
Molybdenum (Mo)	ug/g	6.9	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	130	-		11.1	26.9	28.9	30.9	20.0	18.2	27.3	19.8	15.3
Selenium (Se)	ug/g	2.4	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	25	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	23	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	-		18.1	32.5	35.8	36.7	26.9	27.1	32.1	26.0	22.1
Zinc (Zn)	ug/g	340	-		63.8	60.6	70.3	90.7	51.6	70.3	67.8	53.3	142

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

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

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

ANALYTICAL REPORT

Metals - SOIL

				Lab ID	L2500719-10	L2500719-11
				Sample Date	31-AUG-20	31-AUG-20
				Sample ID	BH2 SS1	MW1 SS1
		Guide Limits				
Analyte	Unit	#1	#2			
Antimony (Sb)	ug/g	7.5	-		<1.0	<1.0
Arsenic (As)	ug/g	18	-		5.3	5.8
Barium (Ba)	ug/g	390	-		23.8	21.1
Beryllium (Be)	ug/g	5	-		0.51	<0.50
Boron (B)	ug/g	120	-		7.2	7.1
Boron (B), Hot Water Ext.	ug/g	1.5	-		0.30	0.22
Cadmium (Cd)	ug/g	1.2	-		<0.50	<0.50
Chromium (Cr)	ug/g	160	-		16.6	10.6
Cobalt (Co)	ug/g	22	-		6.5	4.6
Copper (Cu)	ug/g	180	-		26.5	19.2
Lead (Pb)	ug/g	120	-		9.0	19.3
Mercury (Hg)	ug/g	1.8	-		0.0192	0.0389
Molybdenum (Mo)	ug/g	6.9	-		<1.0	<1.0
Nickel (Ni)	ug/g	130	-		13.8	9.7
Selenium (Se)	ug/g	2.4	-		<1.0	<1.0
Silver (Ag)	ug/g	25	-		<0.20	<0.20
Thallium (Tl)	ug/g	1	-		<0.50	<0.50
Uranium (U)	ug/g	23	-		<1.0	<1.0
Vanadium (V)	ug/g	86	-		30.0	20.6
Zinc (Zn)	ug/g	340	-		37.3	70.5

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

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

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

ANALYTICAL REPORT

Speciated Metals - SOIL

				Lab ID	L2500719-1	L2500719-2	L2500719-3	L2500719-4	L2500719-5	L2500719-6	L2500719-7	L2500719-8	L2500719-9
				Sample Date	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20	31-AUG-20
				Sample ID	BH8 SS1	BH7 SS1	MW9 SS1	MW10 SS1	MW11 SS1	BH6 SS1	MW5 SS1	MW4 SS1	BH3 SS1
		Guide Limits											
Analyte	Unit	#1	#2										
Chromium, Hexavalent	ug/g	10	-	0.36	<0.20	0.62	0.23	0.30	0.38	0.56	0.24	<0.20

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

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

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

ANALYTICAL REPORT

Speciated Metals - SOIL

		Guide Limits			
Lab ID				L2500719-10	L2500719-11
Sample Date				31-AUG-20	31-AUG-20
Sample ID				BH2 SS1	MW1 SS1
Analyte	**Unit**	**#1**	**#2**		
Chromium, Hexavalent	ug/g	10	-	0.51	0.81

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

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

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

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

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

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

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

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

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

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

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

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

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

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

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

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

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

MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
PH-WT	Soil	pH	MOEE E3137A

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

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

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

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

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

Chain of Custody Numbers:

17-844944

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

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

GLOSSARY OF REPORT TERMS

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

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

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

Quality Control Report

Workorder: L2500719 Report Date: 16-SEP-20

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R5223895								
WG3404350-4 DUP		**L2502619-3**						
Boron (B), Hot Water Ext.		0.17	0.16		ug/g	3.4	30	15-SEP-20
WG3404350-2 IRM		**WT SAR4**						
Boron (B), Hot Water Ext.			100.4		%		70-130	15-SEP-20
WG3404350-3 LCS								
Boron (B), Hot Water Ext.			102.0		%		70-130	15-SEP-20
WG3404350-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	15-SEP-20
Batch R5223976								
WG3404344-4 DUP		**L2501153-1**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	15-SEP-20
WG3404344-2 IRM		**WT SAR4**						
Boron (B), Hot Water Ext.			95.6		%		70-130	15-SEP-20
WG3404344-3 LCS								
Boron (B), Hot Water Ext.			101.0		%		70-130	15-SEP-20
WG3404344-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	15-SEP-20
CN-WAD-R511-WT	**Soil**							
Batch R5223193								
WG3401376-3 DUP		**L2500719-6**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	11-SEP-20
WG3401376-2 LCS								
Cyanide, Weak Acid Diss			95.4		%		80-120	11-SEP-20
WG3401376-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	11-SEP-20
WG3401376-4 MS		**L2500719-6**						
Cyanide, Weak Acid Diss			101.6		%		70-130	11-SEP-20
CR-CR6-IC-WT	**Soil**							
Batch R5222107								
WG3401321-8 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.0		%		70-130	11-SEP-20
WG3401321-7 DUP		**L2500044-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	11-SEP-20
WG3401321-6 LCS								
Chromium, Hexavalent			87.5		%		80-120	11-SEP-20
WG3401321-5 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	11-SEP-20

Quality Control Report

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	**Soil**							
Batch R5223150								
WG3401375-9 CRM		**WT-SQC012**						
Chromium, Hexavalent			108.3		%		70-130	14-SEP-20
WG3401375-8 DUP		**L2500751-3**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	14-SEP-20
WG3401375-7 LCS								
Chromium, Hexavalent			102.5		%		80-120	14-SEP-20
WG3401375-6 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	14-SEP-20
EC-WT	**Soil**							
Batch R5223692								
WG3404352-4 DUP		**WG3404352-3**						
Conductivity		0.449	0.425		mS/cm	5.5	20	15-SEP-20
WG3404352-2 IRM		**WT SAR4**						
Conductivity			100.2		%		70-130	15-SEP-20
WG3404579-1 LCS								
Conductivity			98.6		%		90-110	15-SEP-20
WG3404352-1 MB								
Conductivity			<0.0040		mS/cm		0.004	15-SEP-20
Batch R5224011								
WG3404346-4 DUP		**WG3404346-3**						
Conductivity		0.426	0.411		mS/cm	3.6	20	15-SEP-20
WG3404346-2 IRM		**WT SAR4**						
Conductivity			105.8		%		70-130	15-SEP-20
WG3404583-1 LCS								
Conductivity			98.9		%		90-110	15-SEP-20
WG3404346-1 MB								
Conductivity			<0.0040		mS/cm		0.004	15-SEP-20
HG-200.2-CVAA-WT	**Soil**							
Batch R5223732								
WG3404342-2 CRM		**WT-SS-2**						
Mercury (Hg)			105.1		%		70-130	15-SEP-20
WG3404342-6 DUP		**WG3404342-5**						
Mercury (Hg)		0.0161	0.0161		ug/g	0.1	40	15-SEP-20
WG3404342-3 LCS								
Mercury (Hg)			100.5		%		80-120	15-SEP-20
WG3404342-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	15-SEP-20

Quality Control Report

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R5223737								
WG3404339-2 CRM		**WT-SS-2**						
Mercury (Hg)			112.0		%		70-130	15-SEP-20
WG3404339-6 DUP		**WG3404339-5**						
Mercury (Hg)		0.0679	0.0688		ug/g	1.3	40	15-SEP-20
WG3404339-3 LCS								
Mercury (Hg)			106.0		%		80-120	15-SEP-20
WG3404339-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	15-SEP-20
MET-200.2-CCMS-WT	**Soil**							
Batch R5223699								
WG3404342-2 CRM		**WT-SS-2**						
Antimony (Sb)			94.3		%		70-130	15-SEP-20
Arsenic (As)			96.7		%		70-130	15-SEP-20
Barium (Ba)			102.0		%		70-130	15-SEP-20
Beryllium (Be)			104.5		%		70-130	15-SEP-20
Boron (B)			8.9		mg/kg		3.5-13.5	15-SEP-20
Cadmium (Cd)			92.5		%		70-130	15-SEP-20
Chromium (Cr)			101.8		%		70-130	15-SEP-20
Cobalt (Co)			98.7		%		70-130	15-SEP-20
Copper (Cu)			101.3		%		70-130	15-SEP-20
Lead (Pb)			100.0		%		70-130	15-SEP-20
Molybdenum (Mo)			98.1		%		70-130	15-SEP-20
Nickel (Ni)			99.7		%		70-130	15-SEP-20
Selenium (Se)			0.16		mg/kg		0-0.34	15-SEP-20
Silver (Ag)			84.4		%		70-130	15-SEP-20
Thallium (Tl)			0.078		mg/kg		0.029-0.129	15-SEP-20
Uranium (U)			98.1		%		70-130	15-SEP-20
Vanadium (V)			99.9		%		70-130	15-SEP-20
Zinc (Zn)			97.2		%		70-130	15-SEP-20
WG3404342-6 DUP		**WG3404342-5**						
Antimony (Sb)		0.22	0.21		ug/g	4.8	30	15-SEP-20
Arsenic (As)		6.64	6.49		ug/g	2.2	30	15-SEP-20
Barium (Ba)		117	108		ug/g	7.8	40	15-SEP-20
Beryllium (Be)		0.82	0.78		ug/g	4.0	30	15-SEP-20
Boron (B)		12.9	13.8		ug/g	6.8	30	15-SEP-20

Quality Control Report

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5223699								
WG3404342-6 DUP		**WG3404342-5**						
Cadmium (Cd)		0.093	0.091		ug/g	2.9	30	15-SEP-20
Chromium (Cr)		23.8	23.3		ug/g	2.0	30	15-SEP-20
Cobalt (Co)		12.7	12.4		ug/g	2.7	30	15-SEP-20
Copper (Cu)		44.7	43.6		ug/g	2.5	30	15-SEP-20
Lead (Pb)		9.79	9.85		ug/g	0.6	40	15-SEP-20
Molybdenum (Mo)		0.45	0.42		ug/g	6.8	40	15-SEP-20
Nickel (Ni)		26.9	26.4		ug/g	1.7	30	15-SEP-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	15-SEP-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	15-SEP-20
Thallium (Tl)		0.129	0.127		ug/g	1.4	30	15-SEP-20
Uranium (U)		0.533	0.545		ug/g	2.2	30	15-SEP-20
Vanadium (V)		32.5	32.6		ug/g	0.3	30	15-SEP-20
Zinc (Zn)		60.6	59.7		ug/g	1.4	30	15-SEP-20
WG3404342-4 LCS								
Antimony (Sb)			99.8		%		80-120	15-SEP-20
Arsenic (As)			99.6		%		80-120	15-SEP-20
Barium (Ba)			98.5		%		80-120	15-SEP-20
Beryllium (Be)			101.3		%		80-120	15-SEP-20
Boron (B)			98.4		%		80-120	15-SEP-20
Cadmium (Cd)			95.8		%		80-120	15-SEP-20
Chromium (Cr)			100.5		%		80-120	15-SEP-20
Cobalt (Co)			96.9		%		80-120	15-SEP-20
Copper (Cu)			95.8		%		80-120	15-SEP-20
Lead (Pb)			97.3		%		80-120	15-SEP-20
Molybdenum (Mo)			96.6		%		80-120	15-SEP-20
Nickel (Ni)			97.2		%		80-120	15-SEP-20
Selenium (Se)			99.9		%		80-120	15-SEP-20
Silver (Ag)			95.0		%		80-120	15-SEP-20
Thallium (Tl)			95.5		%		80-120	15-SEP-20
Uranium (U)			94.0		%		80-120	15-SEP-20
Vanadium (V)			101.0		%		80-120	15-SEP-20
Zinc (Zn)			97.1		%		80-120	15-SEP-20
WG3404342-1 MB								
							0.1	

Quality Control Report

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5223699								
WG3404342-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	15-SEP-20
Arsenic (As)			<0.10		mg/kg		0.1	15-SEP-20
Barium (Ba)			<0.50		mg/kg		0.5	15-SEP-20
Beryllium (Be)			<0.10		mg/kg		0.1	15-SEP-20
Boron (B)			<5.0		mg/kg		5	15-SEP-20
Cadmium (Cd)			<0.020		mg/kg		0.02	15-SEP-20
Chromium (Cr)			<0.50		mg/kg		0.5	15-SEP-20
Cobalt (Co)			<0.10		mg/kg		0.1	15-SEP-20
Copper (Cu)			<0.50		mg/kg		0.5	15-SEP-20
Lead (Pb)			<0.50		mg/kg		0.5	15-SEP-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	15-SEP-20
Nickel (Ni)			<0.50		mg/kg		0.5	15-SEP-20
Selenium (Se)			<0.20		mg/kg		0.2	15-SEP-20
Silver (Ag)			<0.10		mg/kg		0.1	15-SEP-20
Thallium (Tl)			<0.050		mg/kg		0.05	15-SEP-20
Uranium (U)			<0.050		mg/kg		0.05	15-SEP-20
Vanadium (V)			<0.20		mg/kg		0.2	15-SEP-20
Zinc (Zn)			<2.0		mg/kg		2	15-SEP-20
Batch R5224396								
WG3404339-2 CRM		**WT-SS-2**						
Antimony (Sb)			100.7		%		70-130	15-SEP-20
Arsenic (As)			98.2		%		70-130	15-SEP-20
Barium (Ba)			102.3		%		70-130	15-SEP-20
Beryllium (Be)			102.7		%		70-130	15-SEP-20
Boron (B)			8.8		mg/kg		3.5-13.5	15-SEP-20
Cadmium (Cd)			100.0		%		70-130	15-SEP-20
Chromium (Cr)			98.8		%		70-130	15-SEP-20
Cobalt (Co)			101.5		%		70-130	15-SEP-20
Copper (Cu)			103.4		%		70-130	15-SEP-20
Lead (Pb)			107.7		%		70-130	15-SEP-20
Molybdenum (Mo)			103.1		%		70-130	15-SEP-20
Nickel (Ni)			102.5		%		70-130	15-SEP-20
Selenium (Se)			0.15		mg/kg		0-0.34	15-SEP-20
Silver (Ag)			87.9		%		70-130	15-SEP-20

Quality Control Report

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5224396								
WG3404339-2 CRM		**WT-SS-2**						
Thallium (Tl)			0.078		mg/kg		0.029-0.129	15-SEP-20
Uranium (U)			92.5		%		70-130	15-SEP-20
Vanadium (V)			98.8		%		70-130	15-SEP-20
Zinc (Zn)			101.5		%		70-130	15-SEP-20
WG3404339-6 DUP		**WG3404339-5**						
Antimony (Sb)		0.29	0.27		ug/g	7.4	30	15-SEP-20
Arsenic (As)		4.58	4.57		ug/g	0.3	30	15-SEP-20
Barium (Ba)		80.1	79.6		ug/g	0.7	40	15-SEP-20
Beryllium (Be)		0.69	0.68		ug/g	1.1	30	15-SEP-20
Boron (B)		9.5	9.4		ug/g	1.8	30	15-SEP-20
Cadmium (Cd)		0.278	0.259		ug/g	7.0	30	15-SEP-20
Chromium (Cr)		26.8	26.8		ug/g	0.2	30	15-SEP-20
Cobalt (Co)		11.2	11.6		ug/g	3.8	30	15-SEP-20
Copper (Cu)		30.9	31.6		ug/g	2.2	30	15-SEP-20
Lead (Pb)		23.1	25.3		ug/g	9.1	40	15-SEP-20
Molybdenum (Mo)		1.69	1.65		ug/g	2.7	40	15-SEP-20
Nickel (Ni)		25.9	26.5		ug/g	2.3	30	15-SEP-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	15-SEP-20
Silver (Ag)		<0.10	0.13	RPD-NA	ug/g	N/A	40	15-SEP-20
Thallium (Tl)		0.137	0.138		ug/g	0.3	30	15-SEP-20
Uranium (U)		0.586	0.599		ug/g	2.3	30	15-SEP-20
Vanadium (V)		29.9	30.5		ug/g	1.8	30	15-SEP-20
Zinc (Zn)		131	135		ug/g	2.5	30	15-SEP-20
WG3404339-4 LCS								
Antimony (Sb)			102.5		%		80-120	15-SEP-20
Arsenic (As)			102.3		%		80-120	15-SEP-20
Barium (Ba)			106.7		%		80-120	15-SEP-20
Beryllium (Be)			100.6		%		80-120	15-SEP-20
Boron (B)			99.2		%		80-120	15-SEP-20
Cadmium (Cd)			99.96		%		80-120	15-SEP-20
Chromium (Cr)			101.5		%		80-120	15-SEP-20
Cobalt (Co)			99.4		%		80-120	15-SEP-20
Copper (Cu)			98.5		%		80-120	15-SEP-20

Quality Control Report

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5224396								
WG3404339-4 LCS								
Lead (Pb)			100.5		%		80-120	15-SEP-20
Molybdenum (Mo)			97.8		%		80-120	15-SEP-20
Nickel (Ni)			99.5		%		80-120	15-SEP-20
Selenium (Se)			102.1		%		80-120	15-SEP-20
Silver (Ag)			95.5		%		80-120	15-SEP-20
Thallium (Tl)			102.8		%		80-120	15-SEP-20
Uranium (U)			98.8		%		80-120	15-SEP-20
Vanadium (V)			103.3		%		80-120	15-SEP-20
Zinc (Zn)			99.2		%		80-120	15-SEP-20
WG3404339-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	15-SEP-20
Arsenic (As)			<0.10		mg/kg		0.1	15-SEP-20
Barium (Ba)			<0.50		mg/kg		0.5	15-SEP-20
Beryllium (Be)			<0.10		mg/kg		0.1	15-SEP-20
Boron (B)			<5.0		mg/kg		5	15-SEP-20
Cadmium (Cd)			<0.020		mg/kg		0.02	15-SEP-20
Chromium (Cr)			<0.50		mg/kg		0.5	15-SEP-20
Cobalt (Co)			<0.10		mg/kg		0.1	15-SEP-20
Copper (Cu)			<0.50		mg/kg		0.5	15-SEP-20
Lead (Pb)			<0.50		mg/kg		0.5	15-SEP-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	15-SEP-20
Nickel (Ni)			<0.50		mg/kg		0.5	15-SEP-20
Selenium (Se)			<0.20		mg/kg		0.2	15-SEP-20
Silver (Ag)			<0.10		mg/kg		0.1	15-SEP-20
Thallium (Tl)			<0.050		mg/kg		0.05	15-SEP-20
Uranium (U)			<0.050		mg/kg		0.05	15-SEP-20
Vanadium (V)			<0.20		mg/kg		0.2	15-SEP-20
Zinc (Zn)			<2.0		mg/kg		2	15-SEP-20
MOISTURE-WT	**Soil**							
Batch R5221731								
WG3402202-3 DUP		**L2501543-1**						
% Moisture		4.64	4.58		%	1.2	20	11-SEP-20
WG3402202-2 LCS								
% Moisture			100.5		%		90-110	11-SEP-20

Quality Control Report

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R5221731								
WG3402202-1 MB								
% Moisture			<0.25		%		0.25	11-SEP-20
Batch R5221764								
WG3402211-3 DUP		**L2497055-14**						
% Moisture		10.5	10.7		%	2.2	20	11-SEP-20
WG3402211-2 LCS								
% Moisture			99.9		%		90-110	11-SEP-20
WG3402211-1 MB								
% Moisture			<0.25		%		0.25	11-SEP-20
PH-WT	**Soil**							
Batch R5222368								
WG3401377-1 DUP		**L2500049-5**						
pH		7.66	7.70	J	pH units	0.04	0.3	11-SEP-20
WG3402505-1 LCS								
pH			6.95		pH units		6.9-7.1	11-SEP-20
SAR-R511-WT	**Soil**							
Batch R5223910								
WG3404352-4 DUP		**WG3404352-3**						
Calcium (Ca)		8.71	10.3		mg/L	17	30	15-SEP-20
Sodium (Na)		63.2	65.8		mg/L	4.0	30	15-SEP-20
Magnesium (Mg)		2.87	3.42		mg/L	17	30	15-SEP-20
WG3404352-2 IRM		**WT SAR4**						
Calcium (Ca)			100.5		%		70-130	15-SEP-20
Sodium (Na)			92.0		%		70-130	15-SEP-20
Magnesium (Mg)			98.3		%		70-130	15-SEP-20
WG3404352-5 LCS								
Calcium (Ca)			96.0		%		80-120	15-SEP-20
Sodium (Na)			93.6		%		80-120	15-SEP-20
Magnesium (Mg)			91.6		%		80-120	15-SEP-20
WG3404352-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	15-SEP-20
Sodium (Na)			<0.50		mg/L		0.5	15-SEP-20
Magnesium (Mg)			<0.50		mg/L		0.5	15-SEP-20

Quality Control Report

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R5223977								
WG3404346-4 DUP		**WG3404346-3**						
Calcium (Ca)		0.64	0.95	J	mg/L	0.31	1	15-SEP-20
Sodium (Na)		79.5	81.8		mg/L	2.9	30	15-SEP-20
Magnesium (Mg)		<0.50	0.56	RPD-NA	mg/L	N/A	30	15-SEP-20
WG3404346-2 IRM		**WT SAR4**						
Calcium (Ca)			99.8		%		70-130	15-SEP-20
Sodium (Na)			99.7		%		70-130	15-SEP-20
Magnesium (Mg)			102.6		%		70-130	15-SEP-20
WG3404346-5 LCS								
Calcium (Ca)			100.3		%		80-120	15-SEP-20
Sodium (Na)			97.4		%		80-120	15-SEP-20
Magnesium (Mg)			95.8		%		80-120	15-SEP-20
WG3404346-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	15-SEP-20
Sodium (Na)			<0.50		mg/L		0.5	15-SEP-20
Magnesium (Mg)			<0.50		mg/L		0.5	15-SEP-20

Quality Control Report

Workorder: L2500719 Report Date: 16-SEP-20

Client: LANDTEK LIMITED
205 Nebo Road Unit 3
Hamilton ON L8W 2E1
Contact: Nicole Harper

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

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

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

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