



MEMORANDUM

To: Court Holdings Limited c/o Ms. Ms. Tracy Murray

Date: June 9, 2022

File: 22122

Subject: Remedial Action Plan – 4933 Victoria Avenue North, Vineland Station (Town of Lincoln), Ontario (the Site)

This memo provides information regarding a Remedial Action Plan (RAP) for the above Site. The information has been prepared following review of available environmental site assessment work provided to Landtek as discussed below.

1. “Phase ONE Environmental Site Assessment, 4933 Victoria Avenue North, Vineland Station (Town of Lincoln), Ontario, prepared for Court Holdings Limited, prepared by Landtek Limited, dated March 2022” (*Phase ONE ESA*); and,
2. “Phase TWO Environmental Site Assessment, 4933 Victoria Avenue North, Vineland Station (Town of Lincoln), Ontario, prepared for Court Holdings Limited, prepared by Landtek Limited, dated June 2022” (*Phase TWO ESA*)”

PREVIOUS SITE INVESTIGATION SUMMARY

1. *Phase ONE ESA*

In March of 2022, Landtek was retained by the Client, to prepare a Phase 1 ESA report for the Site, titled “Phase One Environmental Site Assessment, 4933 Vineland Avenue, Vineland Station (Town of Lincoln), Ontario, dated March 2022” (Phase I ESA). The Phase I ESA was conducted to assess the environmental liability, if any, associated with the Site.

The findings of the Phase I ESA identified Potentially Contaminating Activities (PCA) and corresponding areas of potential environmental concern (APEC) and associated contaminants of potential concern (CPC) at the Site. These PCAs, APECs and CPCs are related to:

LANDTEK LIMITED
Consulting Engineers

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
1	Northern portion of the Site PCA-A	Other 1: Waste Generation	On-Site	BTEX and PHCs, VOCs, PAHs, and Metals, CN-, B(HWS), Hg, SAR, EC	Soil and groundwater
2	Northern portion of the Site PCA-B	28. Gasoline and Associated Products Stored in Fixed Tanks	On-Site	BTEX and PHCs, VOCs, PAHs, and Metals, CN-, B(HWS), Hg, SAR, EC	Soil and groundwater
3	Northern portion of the Site PCA-C	34. Metal Fabrication	On-Site	VOCs, and Metals, CN-, B(HWS), Hg, SAR, EC	Soil and groundwater
4	Northern portion of the Site PCA-D	30. Importation of fill material of unknown quality	Off-Site	BTEX and PHCs, VOCs, PAHs, and Metals, CN-, B(HWS), Hg, SAR, EC	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 the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011.
- 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
 BTEX - benzene, toluene, ethylbenzene, and xylenes
 VOCs – Volatile Organic Compounds
 PAHs – Polyaromatic Hydrocarbons

Based on the results of the Phase One ESA, a Phase Two ESA was recommended to investigate the areas of potential environmental concern identified. The investigation included sampling of soil and groundwater on the Phase Two Property.

Based on the APECs identified in the Phase I ESA, a Phase II ESA was recommended.

2. Phase TWO ESA

Eleven (11) boreholes (BH1, MW2, MW3, MW4, BH5, BH6, BH7, MW8, MW9, BH10, and MW11) were drilled on the Site in April of 2022; six (6) boreholes were installed as groundwater monitoring wells (MW2, MW3, MW4, MW8, MW9, and MW11). The boreholes were advanced using a track mounted CME 75 drill rig and final borehole depths was approximately 4.5 meters below ground surface (mbgs) (15 ft) and were established based on the subsurface conditions and likelihood of groundwater being encountered.

The Site Condition Standards (SCS) adopted for this assessment were the Ontario Regulation 153/04 (O. Reg. 153/04) Table 1 SCS Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition and non agricultural (*Residential/Parkland/Institutional/Industrial/ Commercial/Community*) property use (O. Reg. 153/04 Table 1 SCS).

Based on the available background information and testing completed during the course of the investigation, the findings of the Phase Two ESA are summarized as follows:

- Soil samples tested for PAHs, VOCs, PHC F1 to F4, and metals and inorganics (including hydrides and ORPs) were below the O. Reg. 153/04 Table 1 SCS for R/P/I/IC/C land-use in a potable groundwater condition in accordance with O. Reg. 153/04, with the exception of the following;
 - MW2-3 (sample depth 2.0 – 2.6 m) exceeded for various metals and inorganic parameters, PHC F3 and PHC F4;
 - BH6-1 (sample depth 0 – 0.6 m) exceeded for various PAH parameters;
 - BH7-2 (sample depth 0.8 – 1.4 m) exceeded for various PAH parameters;
 - MW9-2 (sample depth 0.8 – 1.4 m) exceeded for Xylenes (VOC parameter); and,
 - BH10-2 (sample depth 0.8 to 1.4 m) exceeded for various PAH parameters and PHC F4; and,
- Groundwater samples tested for PAHs, VOCs, PHC F1 to F4, and metals and inorganics (including hydrides and ORPs) were below the O. Reg. 153/04 Table 1 SCS for R/P/I/IC/C land-use in a potable groundwater condition in accordance with O. Reg. 153/04, with the exception of:
 - MW4, MW8 and MW9 which exceed for various M&I parameters and Trichloroethylene (a VOC parameter).

Impacted soils were identified at a maximum depth of 2.6 m, with an approximate average depth of 1.5 m. Groundwater impacts were identified at three (3) locations sampled.

Remediation Options

Based on information provided to date, soil and groundwater samples were reported to have select contaminants of concern concentrations above the applicable O. Reg. 153/04 Table 1 SCS.

SOIL

The preferred remedial option is expected to be a 'dig and dump' methodology which will focus on the removal/disposal of the impacted material. Reasonable quantification of soil volumes cannot accurately be determined for all areas at this time; however, known clean areas at the site are identified by others and have been used for budgeting purposes.

GROUNDWATER

VOC impacts were found in three (3) shallow groundwater wells. Installation of deeper groundwater monitoring wells will be required to adequately delineate groundwater impacts prior to the submission of an RSC.

* Contingencies have been considered to reflect data gaps and uncertainties based on data obtained and provided to date.

A Risk Assessment (RA) **would be** required to address the groundwater exceedances on Site. Concentrations of VOCs in groundwater may represent a potential risk to building occupants via the migration of vapours to indoor air, but this can be addressed through Risk Management Measures (RMM) derived from the RA.

LANDTEK LIMITED
Consulting Engineers

Estimate of Remediation Soil Quantities and Costs (depicted on attached Figure 1)

Approximate total area of impacted soil: 9,000 m² (variable depths with an average depth of 1.5 m)
 Estimated total volume of material: 13,500 m³ (assumed weight of 2.0 tonnes/m³)
 Estimated total weight of material: 27,000 tonnes

A contingency of 1,000 tonnes should be included for the pocket of deeper soil impacts identified under the Site building.

The remedial action plan budget **Rehabilitation Costs** as presented as follows:

Remediation Cost	Estimated Costs	Timeline of Costs
Supplemental Phase Two ESA works to satisfy RSC (deeper groundwater monitoring wells)	\$ 50,000 - 75,000	2 months
Geo/Environmental technician to - monitor excavation, soil sampling for chemical analyses - vapour monitoring, logging and documentation - Site management	\$ 10,000 - 20,000	4 - 6 weeks
Post Remediation: Chemical Verification for parameters	\$ 30,000 - 50,000	4 - 6 weeks
Remedial Management / Engineering fees	\$50,000 – 100,000	NA
Risk Assessment Note: - Third party RA team involvement / costing - Costing for RMM (discussed above) not included	\$ 100,000 - \$200,000	18 - 24 months
Removal of Fill from Site and Landfill Disposal (tipping fees) - Estimated 37,000 tonnes & assume \$70/tonne	\$ 2,590,000	6 - 8 weeks
Groundwater Treatment / Disposal Costs (estimate)	\$100,000 - \$250,000	NA
Filing Record of Site Condition with one Round of Comments	\$ 10,000	6 - 8 months
Total Remediation Cost Estimate	\$ 2.94 - \$3.3 million	30 - 36 months

These costs assume the following:

- Groundwater impacts are isolated to the Site only and **DO NOT** cross property lines

These are contractor cost are estimates are for budgetary purposes. Cost for shoring and building removal if required would be in addition to the above cost estimate.

Please do not hesitate to contact our office if you have any queries.

Kind regards,

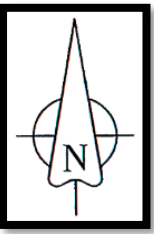
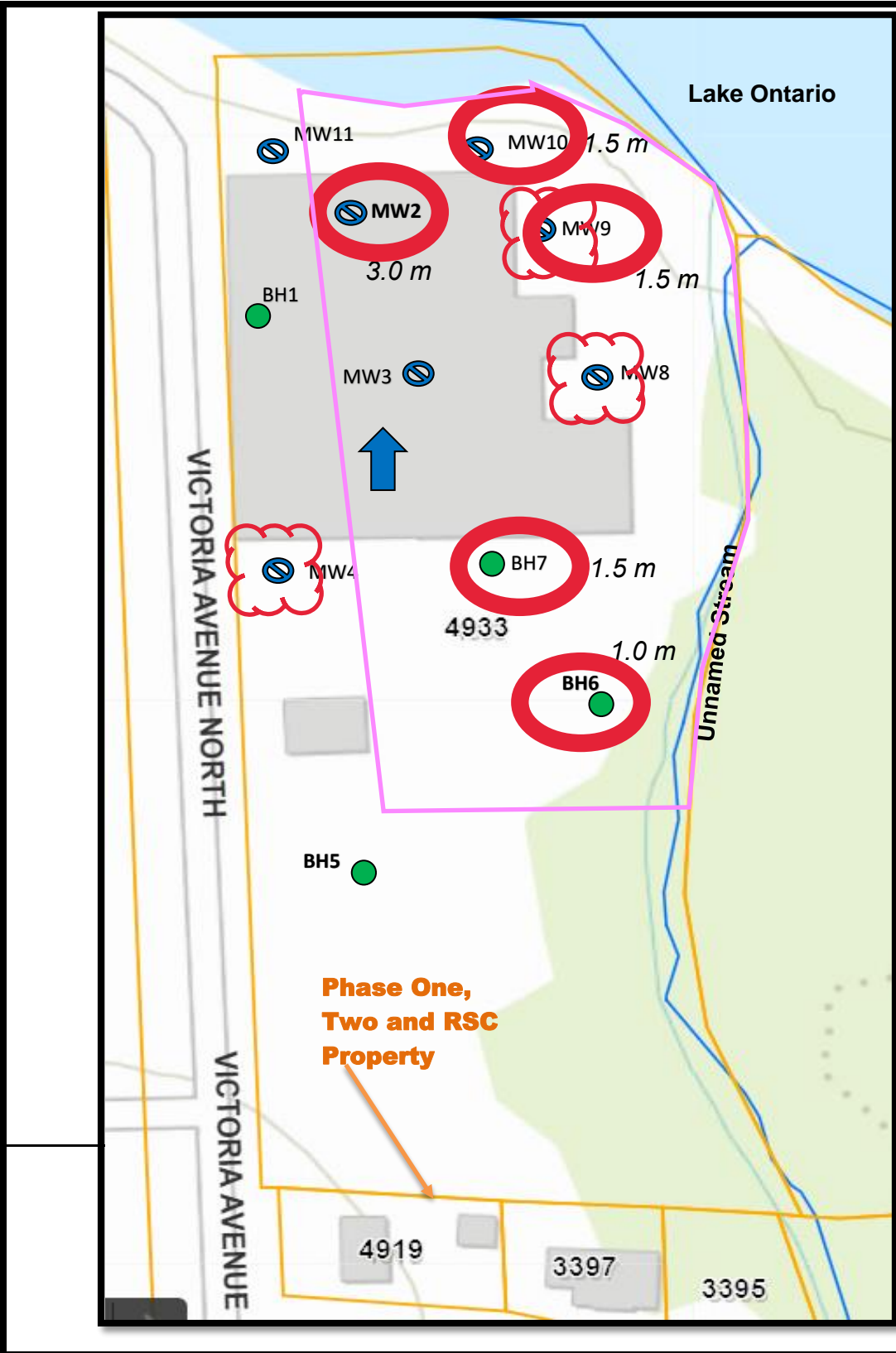
LANDTEK LIMITED



Nicole Harper, H.B.Sc.



Paul Blunt, P. Eng. QP ESA.



LEGEND

- Monitoring Well
- Borehole
- Inferred Groundwater Flow Direction
- Building Footprint

Soil Sample above applicable O. Reg. 153/04 Table 1 SCS

1.0 m Estimated Excavation depth

Groundwater Sample above applicable O. Reg. 153/04 Table 1 SCS

Estimated Area to be remediated

SCALE



Scale:	as shown June 2022
Project:	Phase Two ESA 4393 Victoira Avenue North Vineland Station (Town of Lincoln), Ontario
Title:	Fig 1: Remedial Action Plan (RAP)
Project No.	22122