

## Technical Memorandum

**To:** Christine Chow, Project Manager  
The Regional Municipality of York

**Date:** April 25, 2025

**From:** Karim Hosny, MEB, P.Eng., QP<sub>ESA</sub>  
XS Soil Solutions Inc.

**Document#:** XS.0924-10623\_Rev03

**Subject: Sampling and Analysis Plan for the Construction of  
Paramedic Response Station #33 (PRS33) at 2960 and 2980  
Teston Road, Vaughan, ON.**

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### INTRODUCTION

XS Soil Solutions Inc. (XS Soil) and Montrose Environmental Solutions Canada Inc. (Montrose; formerly Matrix Solutions Inc.) (the Joint-Venture) have partnered together in providing The Regional Municipality of York (York Region), Qualified Person (QP) services under *Ontario Regulation (O. Reg. 406/19): On-Site and Excess Soil Management*. The Joint-Venture was retained by York Region to conduct soil management practices in accordance with O. Reg. 406/19, for the proposed Paramedic Response Station #33 (PRS33) at 2960 Teston Road in Vaughan, Ontario (the Site or Project Area).

The methodology of this Sampling & Analysis Plan (SAP) was based on the requirements of O. Reg. 406/19, and the associated document titled *Rules for Soil Management and Excess Soil Quality Standards* (the Soil Rules). The Joint-Venture completed an Assessment of Past Uses, as defined within O. Reg. 406/19, in order to evaluate the background information and prepare this SAP for the future characterization of the excess soil.

This SAP is prepared to achieve the following objectives:

- Identify each location where soil is to be excavated as defined by the areas of potential environmental concern (APECs); and
- Ensure an appropriate level of sampling and analysis is carried out to determine the concentrations of the contaminants of potential concern (COPCs) within the APECs.

## SAMPLING and ANALYSIS PLAN

### SITE LOCATION AND ANTICIPATED VOLUME OF EXCAVATION

<b>Municipal Site Address</b>	2960 and 2980 Teston Road, Vaughan, Ontario
<b>Site Location</b>	Located on the northeast corner of Jane Street and Teston Road. A tributary branching from the Don River West Branch runs east and south of the site, flowing south toward the Don River and Lake Ontario. Residential and commercial properties are located to the north, east and south of the site. Agricultural land is located to the west of the site.
<b>Approximate Site Plan Area</b>	~0.26 hectares (0.64 acres)
<b>Legal Description</b>	2960 Teston Road: PART LOT 26 CONCESSION 4 AS IN R275257, EXCEPT PART 1, EXPROPRIATED PLAN D943; VAUGHAN – 03344-0192 (LT)  2980 Teston Road: PART LOT 26 CONCESSION 4 VAUGHAN, PARTS 1, 2 & 3 EXPROPRIATED PLAN D949, VAUGHAN – 03344-0193 (LT)
<b>Current Site Owner and Contact (Project Leader)</b>	York Region/The Regional Municipality of York Contact: Christine Chow, PMP Project Manager The Regional Municipality of York (289) 763-3258 Christine.chow@york.ca
<b>Qualified Person</b>	Karim Hosny, MEB, P.Eng., QP <sub>ESA</sub> Found, Project Manager XS Soil Solutions Inc. 5353 John Lucas Drive, Burlington, ON. L7L 6G5 (647) 221-7504 Karim.hosny@xssoil.ca
<b>Current Site Occupant</b>	N/A – vacant land
<b>Current Site Building</b>	N/A

As estimated by York Region, the average depth of excavation will extend to 2.5 metres below ground surface (mbgs) with an approximate total volume of 2,926.24 cubic metres (m<sup>3</sup>) to be generated from the Site, as excess soil. Bedrock is not anticipated to be encountered during the excavation, and the groundwater depth has been reported to be below the proposed final depth of excavation, as such, no dewatering is anticipated during the excavation.

## QUALIFIED PERSON (QP) QUALIFICATIONS

The following QP will be involved in the development and implementation of this SMP:

<b>QP</b>	Karim Hosny
<b>Qualifications</b>	MEB, P.Eng., QP <sub>ESA</sub>
<b>PEO License Number</b>	100171690
<b>Contact Information</b>	647.221.7504 or <a href="mailto:karim.hosny@xssoil.ca">karim.hosny@xssoil.ca</a>
<b>Years of Relevant Experience</b>	16
<b>Recent Experience</b>	<ul style="list-style-type: none"> <li>• Successfully sampled, tracked, and managed the movement of over 3.0 million m<sup>3</sup> of excess soil from large infrastructure projects, most recent the Eglinton Crosstown LRT. Management of excess soil complied with <i>MECP</i> BMP, ahead of the new O.Reg.406/19.</li> <li>• Currently managing the excess soil protocols from similar municipal watermain and wastewater main replacement works in the Region of Halton and Region of Peel.</li> </ul>
<b>Additional Industry Knowledge</b>	<ul style="list-style-type: none"> <li>• Keynote speaker at the 2019 Excess Soil Symposium</li> <li>• Member of the Ontario Environment Industry Association (ONEIA)</li> <li>• Was a member of multiple ONEIA steering committees developing O.Reg.406/19 Best Practices: <a href="https://www.oneia.ca/excess-soil">https://www.oneia.ca/excess-soil</a></li> <li>• Was a member of the RPRA steering committee as a key member of the industry, guiding the development of the Online Excess Soil Registry (to be implemented in 2022 as per MECP).</li> <li>• Currently a member of the Excess Soil Working Group with the MECP.</li> </ul>

## IDENTIFIED APECS WITHIN THE PROJECT AREA

The outcome of the JV APU identified two onsite Potentially Contaminating Activities (PCAs) and four offsite PCAs, resulting in one APEC as shown in the table below. Other PCAs were previously identified and investigated in 2018 and 2021 by EXP Services Inc., which resulted in no soil or groundwater contamination. Based on the review of the investigations, as outlined within the JV APU, the JV QP confirms the investigation outlined all potential APECS, while addressing the known APEC with a due diligence level of sampling. The sampling, however, was not completed as per the requirements outlined within O. Reg. 406/19, and thus, more sampling is required.

Area of Potential Environmental Concern	Location of Potentially Contaminating Activity	Potentially Contaminating Activity (PCA)	Location of PCA	Contaminants of Potential Concern (COPC)	Potentially Impacted Media (Soil and/or Groundwater)
APEC-1 (Fill material located throughout the Project Area)	Entire Project Area	Item 30 - Importation of Fill Material of Unknown Quality	On-Site	PHC/BTEX PAHs Metals & Inorganics (M&I)	Soil

PHC – Petroleum Hydrocarbons

BTEX – Benzene, Toluene, Ethylbenzene, Xylenes

PAH – Polycyclic Aromatic Hydrocarbons

## REQUIRED SAMPLING AND ANALYSIS

Based on APEC-1 identified, in the QP's professional opinion, it is reasonable to consider the upper 2.5 m depth range to consist of the fill material, and this, the COPCs to be contained within this depth range as well.

Based on the above, the excess soil volume representing the known APECs onsite has been determined to total 2,926.24 m<sup>3</sup>, which would be subject to the frequency requirement outlined within the Soil Rules. As outlined within the Soil Rules, one (1) sample will be analyzed for every 200 m<sup>3</sup> of soil, including 10% for duplicate samples for quality assurance/quality control measures. In addition, mandatory leachate analysis is required on a minimum of three (3) soil samples and 10% of the bulk samples for project generating over 600 m<sup>3</sup>, requiring a total of four (4) samples to be analysis for leachate analysis.

Samples will be collected via boreholes across the Project Area with a focus within the proposed building footprint, as majority of the excess soil volume will be generated from this area. Proposed borehole locations are identified on the drawings in Appendix A.

The table below outlines the samples to be collected and submitted for laboratory analysis:

Total Number of Proposed samples	APECs (Location)	Anticipated volume of APEC (m <sup>3</sup> )	Laboratory Submission
14 + 1 duplicate + 4 mSPLP	APEC-1 (Entire Project Area footprint)	2,926.24 m <sup>3</sup>	PHC/BTEX, PAH, M&I

mSPLP – modified Synthetic Precipitation Leaching Procedure (leachate analysis)

PHC – Petroleum Hydrocarbons, BTEX – Benzene, Toluene, Ethylbenzene, Xylenes

PAH – Polycyclic Aromatic Hydrocarbons, M&I – Metals & Inorganics

The following assumptions and technical considerations were applied in developing the above SAP:

- The overall excavation will extend to 2.5 mbgs under the proposed building footprint and 1 mbgs under the proposed parking lot.
- Total designed cut volume is calculated to be 2,926.24 m<sup>3</sup>, which is considered to all be excess soil, as defined within O. Reg. 406/19.

The proposed sample location plan is presented in Appendix A. Since the identified APEC consists of the entire Project Area, the proposed borehole location plan is considered to be adequate for collection of soil samples that would be representative of the soil quality across the proposed excavation area, with a focus under the proposed building footprint.

The field sampling program will maintain QA/QC protocols using appropriate field sampling equipment, disposable gloves between samples, laboratory supplied sample containers and maintain laboratory supplied chain of custody records. Soil samples will be collected in accordance with *Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1* of the Environmental Protection Act and Excess Soil Quality dated February 19, 2021 (Analytical Protocol).

Handling and storage of all soil samples are to be conducted in compliance with Section 47 (*Analytical Procedures*) of Ontario Regulation 153/04 including, but not limited to, the requirements in relation to the handling and storage of the samples, the requirements that the analyses of the samples be carried out by an accredited laboratory and the requirements to comply with the “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”.

## QP DECLARATION

It is the opinion of the XS Soil QP that the project leader or operator of the project area have provided the QP or an individual supervised by the QP with all necessary information and access to the project area and authorized the qualified person or an individual supervised by the qualified person to make any inquiries of the project leader and operator’s employees and agents, for the purpose of assisting the qualified person in preparing or overseeing the preparation of the documents. The XS Soil QP has prepared or overseen the preparation of the planning documents.

This Sampling and Analysis Plan has been prepared by a QP in accordance with Ontario Regulation 406/19 and the associated Soil Rules, to the best of the QP’s knowledge.

**Prepared by:**



April 25, 2025

Adnan Soufani, B.Eng., EIT  
Senior Environmental Field Technician – XS Soil Solutions

**Reviewed by:**



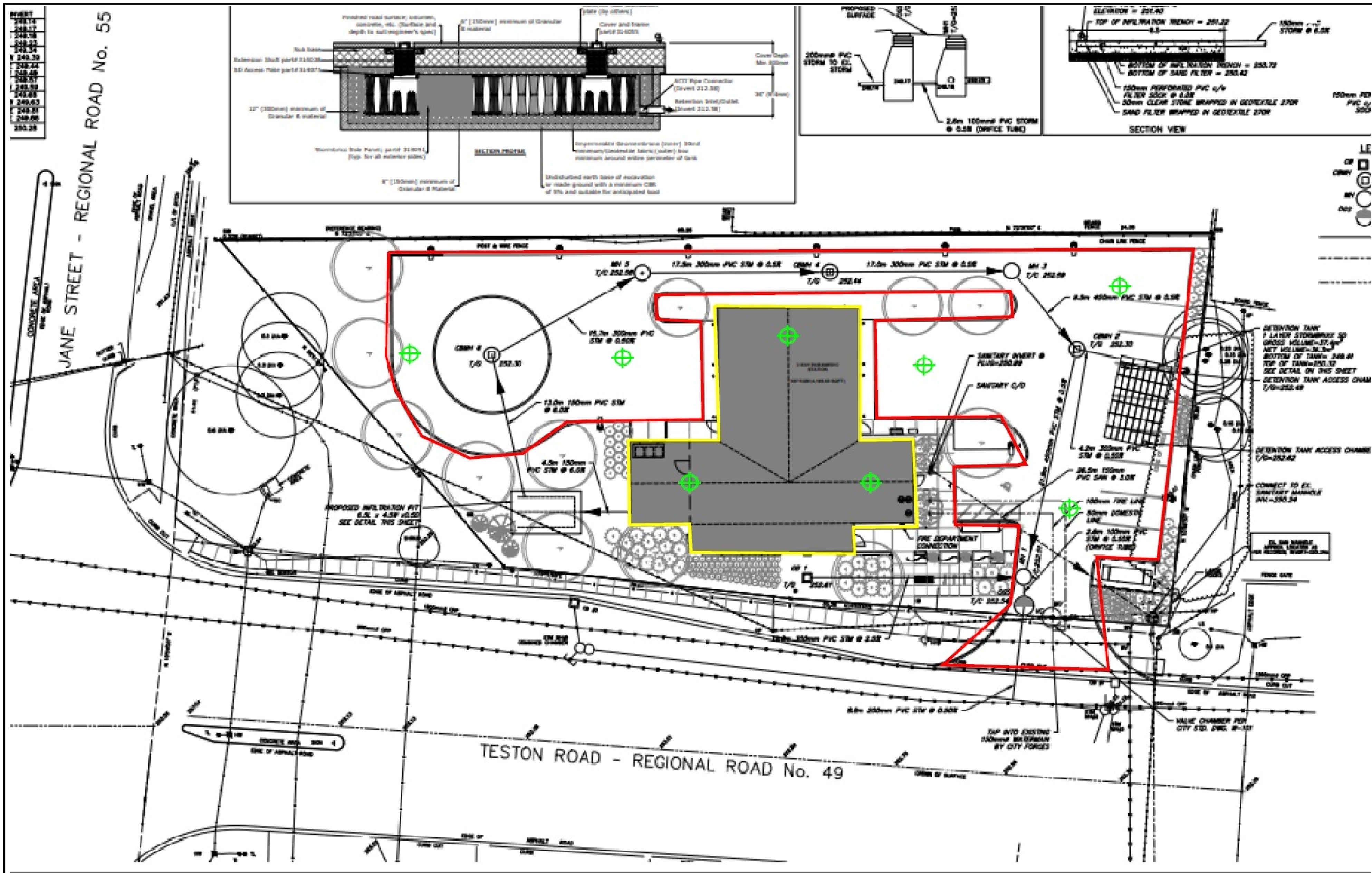
Karim Hosny, MEB, P.Eng., QP<sub>ESA</sub>  
Founder/Project Manager – XS Soil Solutions


Encl.:

Appendix A – Drawings

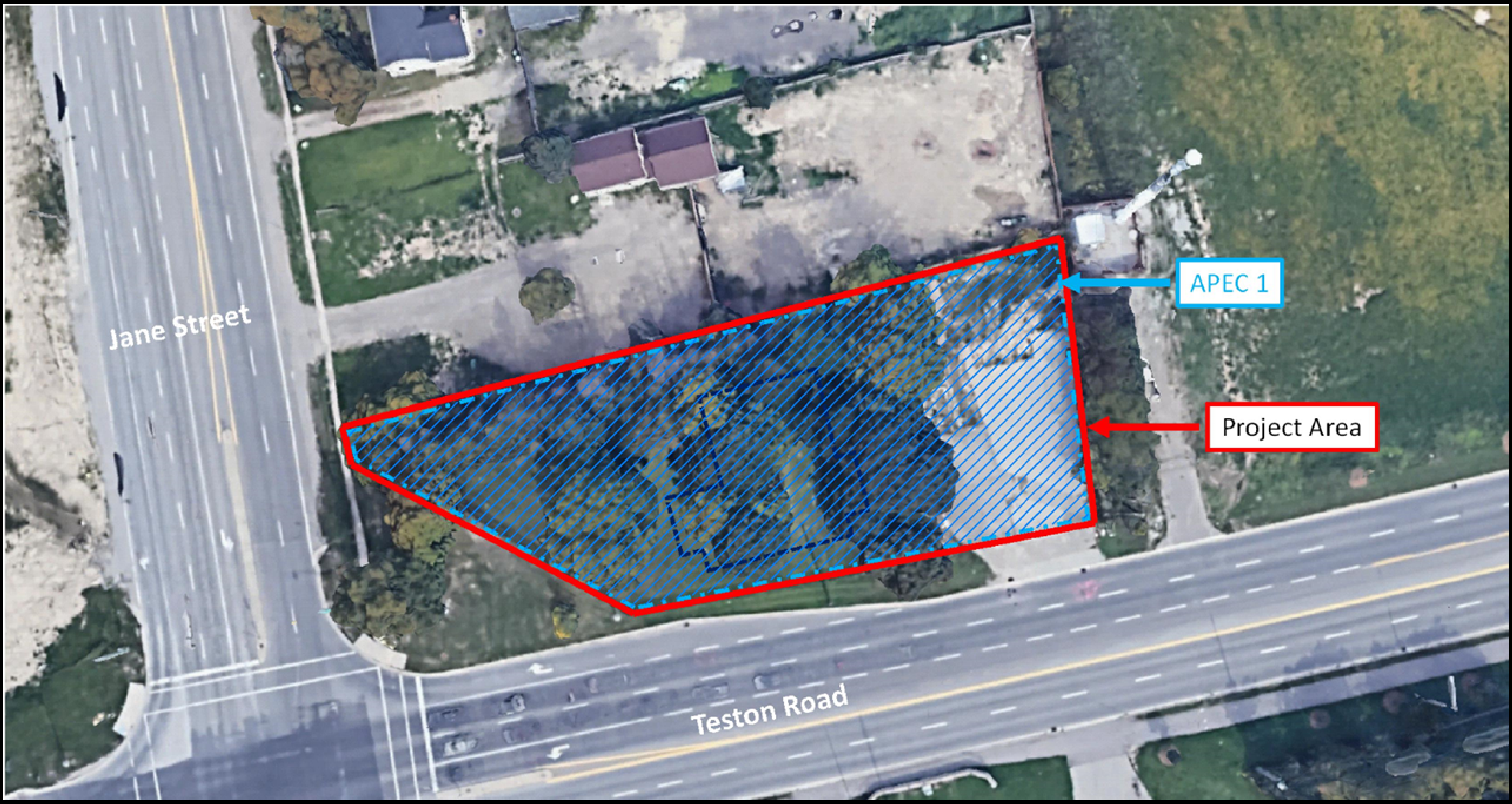
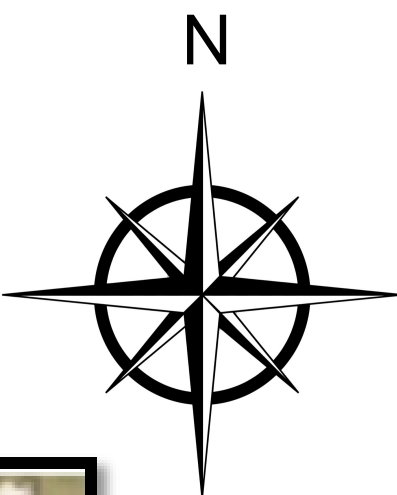
## APPENDIX A


### Project Area and Sampling Location Plan



<div>  <b>SOIL SOLUTIONS INC.</b>  <a href="http://www.xssoil.ca">www.xssoil.ca</a> </div>	CLIENT	PROJECT AREA ADDRESS	LEGEND	PROPOSED BOREHOLE LOCATION PLAN	
	The Regional Municipality of York	2960 and 2980 Teston Road, Vaughan, Ontario	<div> <div></div>Proposed parking area  <div></div>Proposed building footprint  <div></div>Proposed borehole locations </div>	Date	September 16, 2024
				Scale	Not to Scale
				Drawing Number	1





 www.xssoil.ca	CLIENT	PROJECT ADDRESS	LEGEND	AREAS OF POTENTIAL ENVIRONMENTAL CONCERN	
	The Regional Municipality of York	2960 and 2980 Teston Road, Vaughan, Ontario	<div><div></div>Proposed Building Footprint</div> <div><div></div>Project Area</div> <div><div></div>APEC 1</div>	Date	September 16, 2024
				Scale	Not to Scale
				Drawing Number	2