Report

ONTC Englehart Rail Yard
Soil and Groundwater Management Plan

H377031-1036-840-230-0002

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1. Introduction

Hatch Ltd. (Hatch) has been retained by Ontario Northland Transportation Commission (ONTC) to provide a soil and groundwater management plan in preparation of the construction of a new lumber transload facility.

The municipal address of the ONTC's Englehart Rail Yard is 1 Railroad Street, Englehart, Ontario, and located in an area that is generally surrounded by residential areas, stormwater management lagoons, and undeveloped/vacant lands. The ONTC Englehart Rail Yard consists of an active rail yard, ONTC office buildings, parking, small storage buildings, and a large open field which is the location of the proposed new lumber transload facility. The proposed lumber transload facility footprint (hereon Lumber Yard), will be developed within a currently grassed field located adjacent to Lagoon Road, north of the existing track lines. It is currently unused but maintained by ONTC for rail safety in the yard.

The new facility will include the extension of an existing rail track to service lumber yard operations, including the installation of new track infrastructure, switches, and a bumping post. Site works will comprise clearing and grubbing, site grading, installation of engineered fill and sub-ballast, and construction and enhancement of drainage features such as ditches and culverts.

However, based on historic refueling activities and reported leaks and spills, there is potential of subsurface contamination requiring investigation of soil and groundwater quality, and their management during construction activities.

1.1 Project Area Definition

Ontario Regulation 406/19 defines a Project Area as "a single property or adjoining properties on which the project is carried out." The Project Area is considered to be the parcel of land that contains the proposed lumber transload facility footprint, alongside other surrounding ONTC-owned lands including the active rail yard, ONTC office building, parking, and small storage buildings. Figure 1 denotes the Project Area boundaries.

1.2 Background

Hatch was engaged by ONTC to investigate impacts to soil and groundwater within the Project Area, in preparation for the construction of the Lumber Yard. Historically, fueling practices, leaks, and spills on and around the tracks may have led to subsurface contamination, particularly in the footprint of interest in the Project Area.

A Hatch-led geotechnical investigation undertaken in May 2025 provided geotechnical analysis and recommendations for the proposed Lumber Yard, and featured installation of boreholes for subsequent soil and groundwater analysis. The results thereof can be found in the report titled *ONTC Englehart Yard – Geotechnical Investigation and Design Report H375313-1000-2A0-230-0001* [1].

In November 2025, a geoenvironmental investigation was conducted in which fifteen test pits were sampled (TP25-01 – 15), and three existing monitoring wells were sampled (MW25-01 – 03). Soil sample analytical results were compared against:

- Ontario Ministry of Environment, Conservation and Parks (MECP) Table 8 Generic Site Condition Standards (SCS) for Residential / Parkland / Institutional / Industrial / Commercial / Community Property Use (RPIICC) within thirty (30) metres of a Water Body in a Potable Groundwater Condition (hereon Table 8),
- Table 8.1 Full Depth Excess Soil Quality Standards (ESQS/LSL) for Use within thirty (30) metres of a Water Body in a Potable Ground Water Condition (hereon Table 8.1), and
- Table 2.1 Full Depth Excess Soil Quality Standards (ESQS/LSL) in a Potable Groundwater Condition for ICC land uses for coarse-grained soil (hereon Table 2.1).
- Ontario Regulation 347 Schedule 4 Leachate Criteria

Exceedances of MECP Table 8 RPIICC SCS and Table 8.1 and Table 2.1 ICC ESQS/LSL criteria for metals, PHCs, VOCs and PAHs were identified at Test Pits TP25-06 through TP25-12, including various metals (e.g., antimony, arsenic, cadmium, cobalt, copper, lead, mercury, molybdenum, selenium, silver, thallium and zinc), PHC fractions (F2, F3 and/or F4), VOCs (BTEX) and PAHs (including naphthalene and higher-molecular-weight PAHs), depending on the location. At Test Pit TP25-09, copper leachate exceeded Table 2.1 ICC LSL, although soil copper concentrations met applicable Table 2.1 ICC ESQS criteria. All identified soil contamination was limited to mostly shallow soils (< 0.5 metres below ground surface) within the southern portion of the Site. Elevated electrical conductivity was also noted at several locations.

Groundwater sample analytical results were compared to Table 8 Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Groundwater Condition, and the Provincial Water Quality Objective (PWQO).

Groundwater results indicated exceedances only at one location (MW25-01) for Cobalt, Copper and Uranium when compared to PWQO standards. All other groundwater results met Table 8 SCS and PWQO standards.

The report titled *ONTC Englehart Rail Yard Geoenvironmental Investigation Report H377031-1036-840-230-0001* provides the results of this investigation and is the document on which this Soil and Groundwater Management Plan is based upon [2].

1.3 Project Description

The Englehart Lumber Yard Project (the “Project”) involves preparing and servicing a new Lumber Yard area within the ONTC Englehart Rail Yard, located west of 1st Street and north of Railroad Street in Englehart, Ontario. The existing yard contains several operational buildings, switching tracks, and material storage areas, with the proposed Lumber Yard situated in the grassed field adjacent to Lagoon Road.

The Project includes extending an existing rail track to service the new yard, removal of a portion of the existing track, and installation of a replacement track complete with new rail components and ballast structure. Grading and drainage works will recontour the Project Area, clean existing culverts, construct new ditches, and install or extend required culvert infrastructure to support proper stormwater conveyance.

Additional civil works include security fencing, new access gates, and placement of a small, prefabricated storage building within the fenced area. Geogrid reinforcement will be used where required to improve the bearing capacity of native soils beneath new sub-ballast.

Together, these improvements will establish the necessary track access, drainage, and site servicing for the new Lumber Yard area within the Englehart Rail Yard.

1.4 Purpose and Objectives

ONTC has requested that Hatch prepare a Soil and Groundwater Management Plan (SGMP) to outline the management of excavated soil and groundwater that will be generated by the Project. The SGMP will be issued as part of the construction tender package. This SGMP is based on the most current Project design information at the date of issue.

The purpose of the SGMP is to control and minimize environmental impacts during the construction activities and ensure soil and groundwater are adequately characterized, handled/managed, and dispositioned, in accordance with the noted regulations and documents in Appendix B. The SGMP documents the actions that will address environmental risks, opportunities, and compliance obligations. Specifically, the SGMP will be implemented by Contractors who intend to disturb ground surfaces, excavate, or otherwise expose soils and/or groundwater, store and move soil and/or groundwater and/or import soil/material. The objectives of the SGMP are as follows:

- Ensure soil and groundwater are managed in compliance with applicable ONTC and legislative health and safety practices.
- Ensure that soil and groundwater are managed in compliance with applicable environmental laws including an assessment of off-site disposal options.
- Describe the general principles and provide a process/strategy for handling and managing soil and groundwater (specifically if contaminated) that is coordinated with the construction schedule.
- Provide a contingency plan to identify and manage newly identified contamination.
- Support execution of the Project while prioritizing worker and neighbouring community safety.
- Align soil and groundwater management activities with related project management systems, including environmental protection measures, quality controls, emergency response procedures, and other applicable plans.

- Provide Project Area-specific recommendations in line with applicable environmental regulations described in preceding sections.

1.4.1 Soil Management

The general approach to soil management must be implemented throughout the Project by a Qualified Person (QP) in compliance with Ontario Regulation 406/19: On-site and Excess Soil Management (O. Reg. 406/19), the associated Rules for Soil Management and Excess Soil Quality Standards document (the "Soil Rules"), Ontario Regulation 153/04: Records of Site Condition – Part XV.1 of the Act, as amended (O. Reg. 153/04) as well as O. Reg. 347 Schedule 4 Leachate Criteria. Further information on these guidance documents can be found in Appendix B and Appendix C. The Contractor shall be responsible for retaining a QP for implementation of this SGMP during construction.

1.4.2 Groundwater Management

Groundwater may need to be removed from the excavation(s) as part of the Project to keep work areas dry and facilitate the repair/upgrade works. Dewatering activities will require approvals under the *Ontario Water Resources Act (OWRA)* and *Ontario Regulation 387/04*. The SGMP will describe where groundwater management and/or dewatering activities are expected and outline the management (i.e., pumping, storage, treatment, discharge, and haulage options, as applicable) of groundwater in accordance with these regulatory requirements. Lastly, it will provide recommendations for continued monitoring of groundwater post-construction.

Calculation of dewatering rates and any detailed hydrogeological testing or assessment required to support permitting are outside the scope of this investigation.

1.5 Activities Subject to the Plan

The SGMP will be reviewed, consulted, and implemented at any time there is excavation/removal, importation and/or movement of soil or groundwater around, onto, or off of the Project Area, as defined below in Section 2. Activities subject to the SGMP include:

- Excavating (or disturbance of ground surface), handling, storage, stockpiling, transportation/haulage, testing of soil and excavated material.
- On-site soil and excavated material reuse, where feasible and applicable.
- Pumping, temporary storage, testing, treatment and discharge or off-site disposal of groundwater and dewatering effluent.
- Importation of soil or aggregate to be used in subsurface/grading work; and
- Disposition of soil, excavated materials, and groundwater generated as part of the Project.

2. Summary of Geoenvironmental Conditions

2.1 Previous Geoenvironmental Reports and Characterization Studies

The November 2025 geoenvironmental investigation in addition to any future characterization studies, will inform the planning for management of soil and groundwater, including the development of the excess soil planning document requirements of O. Reg. 406/19 which are outlined in Appendix C. Figure 2 denotes the locations of the test pits and monitoring wells previously sampled during the November 2025 geoenvironmental investigation, alongside the proposed excavation footprint.

2.2 Topography, Fill Materials, and Geology

The topography of the Project Area and overall ONTC-owned adjoining property parcels is largely flat, with gentle slopes at an approximate elevation of 200 meter (masl) present at the western bound of the property [3].

According to the May 2025 Geotechnical and November 2025 Geoenvironnmental investigation reports, within the Project Area, topsoil covers a layer of fill/reworked soil consisting of silty clay and/or silty sand containing organics and rootlets extending from about 0.7 to 1.8 meters below the ground surface. Silty clay containing trace sand was encountered below the fill / reworked soil [1].

Although bedrock was not encountered during the aforementioned 2025 investigations, the Project Area is located upon bedrock classified as mafic to intermediate metavolcanic rocks [4].

2.3 Water Bodies

The Project Area contains two narrow ditches, one along the north side, bordering Lagoon Road, and one on the south side, bordering the tracks. Both ditches converge outside of the Project Area before ultimately flowing into a tributary of Crocodile Creek. This tributary is a permanent stream water body, that ONTC has confirmed to be fish-bearing. A significant portion of the Project Area is within a distance of thirty (30) metres of either of the northern or southern ditch, that receive run-off and drainage from the Project Area requiring precautionary measures. An ONTC Oil/Water Separator (under ECA obligations) is located downstream of the Project Area, adjacent to the ONTC Site.

Immediately north of the Project Area are three sewage lagoons at an approximate distance of 35 meters.

An unevaluated wetland is located northwest of the Project Area, as shown in Figure 1. However, the addition of new drainage ditches and culverts as part of the Project construction may lead to changes in existing wetland area extents and boundaries.

Farther east of the Project Area, at a minimum approximate distance of 540 meters, is the Englehart River.

2.4 Hydrogeological Information

According to groundwater flow elevations determined from the results of the November 2025 investigation, it is inferred that the groundwater flow direction in the Project Area is

northwesterly, presumably towards Crocodile Creek tributaries. Groundwater levels in the Project Area were found to be between 0.2 and 0.3 metres below ground surface (mbgs).

2.5 Soil Contamination

Soil sample analytical results were compared against Table 8 RPIICC SCS, Table 8.1 ESQS/LSLs and Table 2.1 ICC ESQS/LSLs. Depending on the acceptable environmental criteria of the proposed reuse site, the ESQS/LSL comparison tables are subject to change.

2.5.1 May 2025 Geotechnical Investigation Results

No exceedances were noted when comparing results from soil sampled from BH25-01 (0-0.6 and 0.8-1.4 mbgs), BH25-02 (0-0.6 and 0.8-1.4 mbgs), and BH25-03 (0-0.6 mbgs), which represent MW25-01, MW25-02, MW25-03 for the November 2025 geoenvironmental investigation.

2.5.2 November 2025 Geoenvironmental Investigation Results

A summary of exceedances from this investigation can be found in Figure 3, and here below:

TP25-01:

- Metals and Inorganics: S2 (1.0 – 1.1 mbgs), S3 (1.0 – 1.1 mbgs), and S4 (2.0 – 2.1 mbgs) exceeded Table 2.1 ESQS in electrical conductivity (EC)

TP25-02:

- Metals and Inorganics: S1 (0.5 – 0.6 mbgs), S2 (1.0 – 1.1 mbgs), and S3 (2.0 – 2.1 mbgs) exceeded Table 2.1 ESQS in EC

TP25-03:

- Metals and Inorganics: S2 (1.0 – 1.1 mbgs) and S3 (2.0 – 2.1 mbgs) exceeded Table 2.1 ESQS in EC

TP25-04:

- Metals and Inorganics: S2 (1.0 – 1.1 mbgs) and S3 (2.0 – 2.1 mbgs) exceeded Table 2.1 ESQS in EC

TP25-05:

- Metals and Inorganics: S1 (0.5 – 0.6 mbgs) and S2 (1.0 – 1.1 mbgs) exceeded Table 2.1 ESQS in EC

TP25-06:

- Metals and Inorganics: S1 (0 – 0.3 mbgs) exceeded Table 8 RPIICC SCS in Cobalt, Table 8.1 ESQS in Antimony, Chromium, Molybdenum, Silver, and Table 2.1 ESQS in EC, Arsenic, Cadmium, Copper, Lead, Mercury, Selenium, Zinc
- PHCs: S1 (0 – 0.3 mbgs) exceeded Table 8.1 ESQS in F4 (C34-C50) and Table 2.1 ESQS in F3 (C16-C34)

- VOCs and BTEX: S1 exceeded Table 2.1 in Xylenes

TP25-07:

- Metals and Inorganics: S1 (0 – 0.3 mbgs) exceeded Table 8.1 ESQS in Antimony, Molybdenum, Selenium, Silver and Table 2.1 ESQS in EC, Arsenic, Cadmium, Copper, Lead, Mercury, Zinc
- PHCs: S1 (0 – 0.3 mbgs) exceeded Table 2.1 ESQS in F3 (C16-C34)
- PAHs: S1 (0 – 0.3 mbgs) exceeded Table 8.1 ESQS in Naphthalene

TP25-08:

- Metals and Inorganics: S1 (0 – 0.3 mbgs) exceeded Table 8.1 ESQS in Antimony, Cobalt, Molybdenum, Selenium, Silver, and Table 2.1 in EC, Arsenic, Cadmium, Copper, Lead, Zinc
- PAHs: S1 (0 – 0.3 mbgs) exceeded Table 8.1 ESQS in Naphthalene

TP25-09:

- Metals and Inorganics: S1 (0 – 0.3 mbgs) exceeded Table 8.1 ESQS in Copper, Table 2.1 ESQS in EC and Table 2.1 LSL in Copper leachate

TP25-10:

- Metals and Inorganics: S1 (0.3 – 0.5 mbgs) exceeded Table 8.1 ESQS in Zinc, and Table 2.1 ESQS in EC

TP25-11:

- Metals and Inorganics: S1 (0.3 – 0.5 mbgs) exceeded Table 8.1 ESQS in Antimony, Cobalt, Molybdenum, Silver, and S2 (0.3 – 0.5 mbgs) exceeded Table 8.1 ESQS in Antimony, Molybdenum, Silver. Both S1 and S2 exceeded Table 2.1 ESQS in EC, Arsenic, Cadmium, Copper, Lead, Mercury, Selenium, Zinc
- PHCs: S1 (0.3 – 0.5 mbgs) exceeded Table 8.1 ESQS in F2 (C10-C16) and F4 (C34-C50) and exceeded Table 2.1 ESQS in F3 (C16-C34). S2 (0.3 – 0.5 mbgs) exceeded Table 8.1 ESQS in F4 (C34-C50) and Table 2.1 in F3 (C16-C34)
- VOCs and BTEX: S1 (0.3 – 0.5 mbgs) and S2 (0.3 – 0.5 mbgs) exceeded Table 2.1 ESQS in Xylenes
- PAHs: S1 (0.3 – 0.5 mbgs) exceeded Table 8 RPIICC SCS in 2-Methylnaphthalene, Table 8.1 ESQS in Benzo[b]fluoranthene, Indeno [1,2,3-cd] pyrene, Naphthalene, and Table 2.1 ESQS in Anthracene, Benzo[a]pyrene, and Phenanthrene. S2 (0.3 – 0.5 mbgs) exceeded Table 8.1 ESQS in Naphthalene and Table 2.1 ESQS in Phenanthrene.

TP25-12:

- Metals and Inorganics: S1 (0 – 0.3 mbgs) exceeded Table 8.1 ESQS in Antimony, Cadmium, Molybdenum, Thallium and Table 2.1 ESQS in EC, Arsenic, Copper, Lead, Mercury, Selenium, Silver, Zinc
- PHCs: S1 (0 – 0.3 mbgs) exceeded Table 2.1 ESQS in F2 (C10-C16)
- VOCs and BTEX: S1 (0 – 0.3 mbgs) exceeded Table 2.1 ESQS in Benzenes, Xylenes, Ethylbenzene and Toluene
- PAHs: S1 (0 – 0.3 mbgs) exceeded Table 2.1 ESQS in Naphthalene

TP25-13:

- Metals and Inorganics: S1 (0.3 – 0.85 mbgs) exceeded Table 2.1 ESQS in EC

All remaining samples met the applicable Table 8 RPIICC SCS and Table 8.1 ICC ESQS criteria.

2.6 Groundwater Contamination

Groundwater contamination is considered a concern throughout the entire Project Area due to its potential to migrate. Therefore, groundwater contamination was characterized for the Project Area.

Groundwater sample analytical results of the Project Area from the November 2025 Geoenvironmental Investigation were compared to Table 8 of O. Reg. 153/04, and the Provincial Water Quality Objectives (PWQO). Figure 4 shows the exceedances listed below.

MW25-01:

- Metals and Inorganics: BH25-01 and DUP-01 both exceeded PWQO in cobalt, copper, and uranium.

All remaining groundwater samples met the PWQO criteria.

3. Soil Management

This section provides guidelines for various aspects relating to soil management, as per applicable regulations.

3.1 Soil and Excavated Material Management

3.1.1 Excavation

As outlined in Section 1.4.1, all excavation activities for the Project will be carried out in accordance with this SGMP. Before any intrusive work begins, a site visit will be completed to identify potential overhead hazards or obstructions. The Contractor shall retain Ontario OneCall and/or a private utility locator to identify subsurface utilities. Excavations must not affect the bearing capacity at the bottom of any footing or at the bottom of any tie of an active railway track.

It is expected that the following soil and excavated materials could be generated by the Project:

- Soil Materials that include:
  - Topsoil
  - Mixed Fill in the form of silty clay / silty sand with organics
  - Native Soil in the form of silty clay
  - Bedrock.
- Waste Materials that include:
  - Construction Rubble (broken concrete, ballasts, asphalt, etc.)
  - Mixed debris, rubbish, and deleterious material; or
  - Investigation Derived Waste (soil cuttings and purge water).

If no beneficial on-site reuse is available for the soil material, it will be designated as excess soil and managed off-site in accordance with O. Reg. 406/19. Waste material shall be disposed of at an appropriate landfill. The SGMP will likely require revisions if the expected soil and waste volumes change, as it currently only supports the characterization of approximately 3,600 m^3 of excess soil.

All excavation work within the Project Area shall be monitored to confirm that soil is being assessed and handled in accordance with the SGMP. The excavation floor and walls shall be sampled, if required, following the confirmatory sampling procedures outlined in Section □. Excavated soils will either be placed directly into haul trucks or stockpiled in a designated area, consistent with the stockpiling requirements in Section 3.1.2. Excavations shall be completed with a level, undisturbed bottom free of loose, soft, or organic materials.

3.1.2 Stockpiling

Stockpiling on-site may be required for testing prior to soil export or before placement and compaction of imported soil. If temporary stockpiling is needed, the soil will be stored in controlled stockpiles at predetermined locations identified by ONTC. Soil from the Project Area that has not yet been sampled must remain segregated from all other soil. Soil that has been sampled must remain segregated from other soil and from soil of differing quality. Soil classified as salt-impacted excess soil under O. Reg. 406/19 must also be kept separate from other soil and soil of different quality.

In accordance with the Soil Rules, soil shall not be stored:

- Within 30 m of a waterbody, or
- Within 10 m of the property line, unless one of the following conditions applies:
  - No more than 500 m^3 of excess soil will be stored at any one time on the Project Area;

- Excess soil will be stored on-site for less than 1 week;
- A physical barrier (e.g., a concrete wall) separates the storage location from the property boundary; or
- The storage occurs within a public road right-of-way.

Where stockpiles are not within 10 m of the property line, they shall not exceed 2,500 m^3 in volume and/or three meters in height and must be constructed to prevent the release of dust and odours, as well as runoff entering stormwater, surface water, or groundwater. Stockpiles should be graded to control runoff direction.

Stockpiles of contaminated soil (as defined in Section 2.5) shall be placed on polyethylene sheeting with a minimum thickness of 0.4 mm to contain moisture and prevent leaching into underlying soils. Where soil is contaminated with metals, PHCs, BTEX, VOCs, PAHs, OCPs, and/or PCBs, stockpiles shall be tarped to minimize dust generation. Perimeter controls such as silt socks, silt fence, or equivalent measures shall be installed to prevent runoff and soil migration across the Site. Weekly inspections will be conducted to monitor the management of stockpiles.

3.1.3 Soil Processing

If soil processing is to be carried out within the Project Area, all activities shall comply with Section 6 of O. Reg. 406/19 and the related requirements in the Soil Rules. Permitted soil processing activities in the Project Area include:

- Passive aeration
- Passive dewatering
- Mechanical dewatering
- Mixing, provided the soil is mixed only with soil of similar quality and not for the purpose of diluting contaminant concentrations
- Soil turning
- Size-based sorting
- Debris removal through sorting
- Mixing with a substance or material intended to dewater or solidify the soil, subject to Subsection (4) of Section 6 of O. Reg. 406/19

If additional soil processing techniques are needed that are not permitted on-site, the soil shall be transported to a suitable facility licensed by the MECP to perform the required processing activities.

3.1.4 Applicable On-Site and Off-Site Soil Reuse Tables

For the purposes of the Project, soil is deemed to be not suitable for on-site reuse if soil exceeds the MECP Table 8 Site Condition Standard (SCS) for Residential/Parkland/InstitutionalIndustrial/Commercial/Community (RPIICC) use within the Project Area. For the purpose of off-site reuse at locations accepting Table 8.1 ESQS

(ICC) and/or Table 8.1 LSL (ICC), soil is considered contaminated where analytical results exceed the applicable criteria. For the purpose of off-site reuse at locations accepting Table 2.1 ESQS (ICC) and/or Table 2.1 LSL (ICC), soil is considered contaminated where analytical results exceed the applicable criteria.

Soil that does not meet Table 8 SCS may not be placed within 30 m of an environmentally sensitive area / a water body. The two drainage ditches located within the Project Area alongside the northern and southern border, and the tributary of Crocodile Creek immediately north-west of the Project Area are considered environmentally sensitive features.

Soil Reuse Planning investigations (outlined in Section 3.2 and Appendix C) will be used to identify any areas of contamination within the Project Area prior to moving excess soil. Contaminated soil will be managed in a manner that prevents leaching, runoff, cross-contamination, and nuisance effects, as described in Sections 3.1.2 and 3.1.6.

3.1.4.1 Discovery of Unknown Contamination

Construction activities, including earth works, may result in the discovery of contamination beyond what was identified through the Soil Reuse Planning investigations. Unknown contamination may also be encountered due to undocumented spills, releases, leaks, or other past contaminating activities. Indicators of potential soil contamination include discolouration, odours, oily sheens, or the presence of debris or foreign materials such as waste or rubble. Any discovery of contamination will be addressed as follows:

- The individual who identifies the contamination will stop work and secure the area to prevent unauthorized access by construction personnel.
- The individual making the discovery will notify appropriate personnel, including but not limited to the construction manager, health, and safety representative, ONTC Facility Manager, ONTC Environmental Manager, and the Project QP.
- Appropriate health and safety measures will be determined and implemented for workers entering the affected area.
- Any additional visually identifiable contamination will be excavated and segregated using the protective measures described in Section 3.1.2.
- The QP or their delegate will attend the site within 48 hours to collect soil samples from the excavated stockpile for material characterization. A toxicity characteristic leachate procedure (TCLP) sample will also be collected to confirm whether the soil can be disposed of as non-hazardous waste.
- The QP or their delegate will collect confirmatory soil samples from the excavation in accordance with Section 3.1.4.1.1. Samples will be submitted for analysis with a 24–36-hour rush turnaround, as specified in the SAP.
- After reviewing the laboratory results, the QP will confirm whether the vertical and lateral extents of contamination within the excavation (and depth of excavation) have

been fully delineated and/or removed. If contamination remains, additional excavation and sampling will be performed as necessary.

- Once results confirm that the required extent of contamination has been removed, construction work may resume.

3.1.4.1.1 Confirmatory Sampling Requirements for Excavations

In accordance with the procedure for addressing the discovery of unknown contamination, once contaminated soil has been excavated, confirmatory soil samples shall be collected from each wall and the floor of the excavation to verify that the contamination within the excavation footprint (including its full depth) has been removed. The number and placement of these samples must meet or exceed the minimum requirements outlined in Table 3 of Schedule E of O. Reg. 153/04, as shown in Table 1: Confirmatory Minimum Sampling Requirements below.

Table 1: Confirmatory Minimum Sampling Requirements

Floor Area (m^2)	Floor Samples	Sidewall Samples (Should not all be taken from the same Wall and should Represent Worst-Case)
<25	2	2
>25 to 50	2	3
>50 to 100	3	3
>100 to 250	3	5
>250 to 500	4	6
>500 to 750	5	7
>750 to 1,000	5	8

3.1.5 Spills

Potential spill sources associated with the Project may include, but are not limited to, fuel and oil storage and handling, chemical storage and handling, and leaks from equipment or machinery. Equipment, machinery, and other potential spill sources or materials of potential environmental concern should be stored in designated areas, secured, and labelled in accordance with applicable regulations.

The following spill control measures are recommended for implementation on the Project:

- Good housekeeping practices will help reduce the likelihood of spills, leaks, or unintentional releases to the environment (e.g., using containers appropriate for the materials being transported and ensuring that leaking containers are not used).
- Equipment, machinery, and vehicle maintenance and fueling will occur only in designated areas located at least 30 m from watercourses or stormwater inlets.
- Spill kits will be placed near storage, maintenance, and fueling areas, and all vehicles will be equipped with spill kits.

- In the event of a spill, immediate measures shall be taken to contain the release (e.g., barriers, pumping, vacuum).
- Analytical testing will be performed to confirm that cleanup is complete, and the event will be documented in accordance with O. Reg. 153/04.

If a spill or release occurs that results in soil impacts within the Project Area, the procedure outlined in Section 3.1.4.1 shall be followed to ensure the contamination is removed to the extent required.

3.1.6 Nuisance Effects

In accordance with the Soil Rules, soil and excavated materials shall be managed in a manner that prevents adverse effects associated with their generation, receipt, processing, storage, and movement. This includes managing noise, dust, mud-tracking, leaching, runoff and erosion, and outdoor air impacts. The following sections apply unless otherwise directed by ONTC.

3.1.6.1 Noise

Haulers and equipment operators can apply noise mitigation measures when operating machinery, such as progressive gear shifting, limiting idling time, minimizing soil drop heights, and avoiding tailgate banging. All noise mitigation measures shall be implemented in accordance with a Construction Noise and Vibration Management Plan (CNVMP) prepared by the Contractor for the Project.

3.1.6.2 Dust

Preventing dust generation is the most effective means of dust control on the Project. Dust prevention methods include minimizing soil drop heights, restricting soil handling during high-wind conditions, limiting traffic to designated roads, restricting access to essential vehicles only, maintaining vehicle speeds below 15 km/h in the Project Area, and using dust suppressants such as water or calcium chloride. Where dust cannot be fully prevented, mitigation measures such as misters may be required. All dust prevention and control activities shall be carried out in accordance with a Dust Management Plan (DMP) developed by the Contractor.

3.1.6.3 Mud-Tracking Controls

Measures to prevent mud tracking from the Project Area include inspecting equipment and trucks for accumulated soil before entry or exit, installing mud mats at construction entrances and exits, using wheel-wash systems, and applying additional washing as needed. All mud-tracking controls shall be implemented in accordance with the Erosion and Sediment Control Plan (ESC) developed by the Contractor.

3.1.6.4 Leaching Controls

Leaching occurs when materials exposed to water release constituents from their surface or interior, depending on factors such as porosity, hydraulic conductivity, fill geometry, and site conditions. Leaching from contaminated soil or excavated materials may pose a concern for the Project if significant contaminated material is encountered. In-situ sampling of run-off during excavation activities, particularly within drainage areas, is recommended to ensure the implemented measures are sufficient. Following best

management practices for stockpile management, as outlined in Section 3.1.2, will help reduce the potential for leaching.

3.1.6.5 Runoff and Erosion Controls

Project Area drainage (during and post-construction) via the normal pathways (southern and northern ditches) flows directly to a tributary of Crocodile Creek, which is a permanent stream watercourse and known to be fish-bearing. Therefore, sediment/erosion control and monitoring is imperative. The migration of clean or contaminated soil through runoff to drainage systems or watercourses can be minimized by implementing suitable erosion and sediment control (ESC) measures. Preventative measures may include limiting vegetation removal and grading, exposing only the areas required for excavation, covering or seeding stockpiles and exposed surfaces, and avoiding earthworks during precipitation events.

Where erosion and sediment-laden runoff cannot be fully prevented, ESC controls may be installed to limit sediment migration. These may include sediment control fencing, filter socks, natural fibre logs, rock check dams, storm inlet protection, sediment bags, and vehicle tracking controls. In-situ sampling of run-off, particularly within drainage areas during excavation activities, is recommended to ensure the implemented measures are sufficient. The ESC Plan also outlines the specific controls to be used for this Project.

Long-term, built-in solutions within the design for the Project consist of recommendations such as rip-rap lining the southern ditch and lining the northern ditch with hydroseed to stabilize slopes.

3.1.6.6 Air Quality Controls

Construction activities will comply with the Air Pollution – Local Air Quality Regulation (O. Reg. 419), the Air Emissions Monitoring and Reporting Regulation (O. Reg. 127), and applicable municipal by-laws. Haulers and machine operators shall ensure vehicles, equipment, and machinery are in good working order, minimize idling, and implement appropriate dust controls (see Section 3.1.6.2). The DMP will detail the specific prevention and mitigation measures to be applied for this Project.

3.2 Excess Soil Reuse Planning

O. Reg. 406/19 and the Soil Rules set out several requirements that must be met before soil can be removed from a Project Area. These requirements address soil characterization, soil reuse planning documentation, on-site processing of excavated soil, and the disposition of excess soil generated from the Project Area (as defined in Section 1.6). For the definition of excess soil used in this report, refer to Appendix C.

To ensure that excess soil reuse from a Project Area is planned and carried out appropriately, the regulation establishes obligations for projects that generate excess soil, all of which must be fulfilled prior to removing excess soil from the Project Area.

The excess soil reuse planning requirements include:

- Completion of an Assessment of Past Uses (APU)
- Completion of a Sampling and Analysis Plan (SAP)

- Completion of a Soil Characterization Report (SCR)
- Completion of an Excess Soil Destination Assessment Report (ESDAR)
- Filing of a Notice in the Excess Soil Registry (the "Registry") for the Project
- Implementation of a Tracking System

These requirements apply to any project that excavates excess soil intended for removal from the Project Area. The APU, SAP, SCR, and ESDAR must be completed by, or under the supervision of, a Qualified Person (QP) and must be finalized before a notice is filed in the Registry. Additional details on these requirements are provided in Appendix C. The Contractor is responsible for ensuring compliance with O. Reg. 406/19.

3.3 Soil Importation

Importation of soil and fill to the Project Area may be required to support construction activities. The following sections outline the procedures that the QP and project personnel shall follow to ensure that all imported material meets the applicable soil quality requirements.

The procedures in the following subsections address two categories of imported material:

- Imported Soil – Soil brought from another construction project for beneficial reuse within the Project Area.
- Imported Fill – Aggregate material sourced from an aggregate pit or facility approved by the MECP under the Aggregate Resources Act (ARA).

3.3.1 Source Site Selection

Source sites for imported soil and/or fill materials will be assessed prior to importation to confirm that the material meets the Project requirements. The criteria for evaluating source sites and materials for imported soil and fill are provided in Table 2.

Table 2: Imported Soil/Fill Evaluation Criteria

Material Type	Evaluation Criteria
Imported Soil	• Documentation from the source site, including the APU, SAP, and SCR, shall be reviewed by the project QP to confirm compliance with O. Reg. 406/19 and the Soil Rules. • Once the documentation is deemed acceptable, the QP will review the soil quality data from the source site to verify that it meets the applicable ESQS and LSL for the intended placement location within the Project Area. • Verification of the geotechnical suitability of the material for its intended use is outside the scope of this plan.
Imported Fill	• Environmental documentation from the aggregate facility including, but not limited to, documentation required under the Aggregate Resources Act (ARA) shall be reviewed to confirm that the environmental quality of the material meets the applicable ESQS and LSL for the intended placement location within the Project Area. • O. Reg. 406/19 does not apply to materials imported from pits or quarries used to produce consolidated or unconsolidated aggregates, as defined under the ARA, including recycled aggregates produced at such facilities.

Material Type	Evaluation Criteria
	Imported topsoil produced under an ARA permit is also not subject to O. Reg. 406/19. • In these cases, the QP may exercise discretion in determining whether additional analytical testing is required.

3.3.2 Transportation and On-Site Screening of Imported Soil and Fill

If, following the review of source site documentation, the imported soil or fill material meets the applicable ESQS and LSL, and all other requirements of O. Reg. 406/19 and the Soil Rules are satisfied, the QP will notify the Contractor that the material is suitable for placement in designated areas of the Project Area. The QP will then request that the source site provide an ESDAR (for imported soil) and/or a bill of lading (for imported fill) prior to shipment to the Project Area. For imported soil, the QP will also request confirmation from the source site's QP that a notice has been filed in the Registry and will complete a final verification to ensure the notice has been filed.

The Contractor is expected to coordinate directly with the source site regarding the timing of material importation. O. Reg. 406/19 specifies transportation requirements that haulers must follow. Sections 17 and 18 of the regulation outline the vehicle and documentation obligations. In general, haulers must ensure their vehicles are in good working condition and capable of safely transporting soil without causing nuisance. In addition to the regulatory requirements, haulers should ensure the trailer box is clean before loading soil, visually inspect the material during loading, confirm the designated placement location, remain with the vehicle during unloading, and clean trailers after each load to prevent cross-contamination.

Upon arrival, on-site Project personnel will visually and olfactorily screen all loads deposited within the Project Area for evidence of contamination. If contamination is detected before unloading, the load will be rejected, and the hauler will be directed to return the soil to the source site. If contamination is identified during unloading, construction personnel will instruct the hauler to stop unloading. Any material already deposited will be removed from the placement area, stockpiled, and segregated for confirmatory testing in accordance with Section 3.3.3.2. Construction personnel will also request that the hauler return any remaining soil in the truck to the source site.

3.3.3 Analytical Testing

3.3.3.1 Due Diligence Testing

Due diligence sampling and QA/QC analytical testing may be conducted during the selection of a suitable source site and/or during soil movement from the source site to the Project Area, based on Best Management Practices (BMPs) and the discretion of the Project QP. If due diligence or QA/QC is required, the QP will prepare and implement a site-specific due diligence and/or QA/QC SAP to verify and manage soil quality for reuse within the Project Area. The due diligence and/or QA/QC SAP will be developed with consideration of the total volume of soil required, field screening results, and the requirements of O. Reg. 406/19 and the Soil Rules.

Soil samples collected as part of the due diligence and/or QA/QC SAP will be analyzed, at minimum, for the parameters (including leachate) identified in the source site APU as contaminants of potential concern (COPCs). Additional parameter groups may be included at the QP's discretion. Leachate sampling for waste characterization may also be required if contamination is identified during due diligence or QA/QC activities.

3.3.3.2 Confirmatory Testing

If contamination is identified during soil unloading, or later after placement has occurred, the material will be managed in accordance with the procedure outlined in Section 3.3.2. Soil samples will be collected from the stockpile and analyzed, at minimum, for the COPCs identified in the APU. Additional COPCs may be included based on the observed condition of the stockpile or any evidence suggesting the presence of further contaminants.

Once analytical results are received, the Project QP will determine whether the material is contaminated or acceptable for use within the Project Area. If the material is contaminated, leachate sampling for waste characterization may be required to facilitate disposal at a licensed facility. The material will be removed once laboratory results confirm that it can be managed as non-hazardous waste at an approved soil receiving facility.

If the soil is determined to be suitable for reuse within the Project Area, the construction manager will decide whether the material will be utilized.

3.4 On-Site Soil Management

Soil removed from the Construction Area may be transported to other locations within the Project Area where additional soil is required for purposes identified and approved by ONTC. This soil is not classified as excess soil and is therefore not subject to the requirements of O. Reg. 406/19 or the Soil Rules. The Project QP shall develop and implement a site-specific due diligence and/or QA/QC Sampling and Analysis Plan (SAP) to verify and control soil quality for reuse within the Project Area. Analytical testing shall be performed, and the soil must meet the Table 8 SCS ICC requirements to be reused across the Project Area. The Contractor shall obtain written approval from ONTC prior to placing reused soil within the Project Area.

If the soil does not meet Table 8 SCS ICC criteria and/or there is no beneficial reuse for the soil in the Project Area, it will have to be removed from the Project Area and classified as excess soil subject to O. Reg. 406/19.

4. Groundwater Management

This section provides guidelines for various aspects relating to groundwater management, as per applicable regulations.

It is anticipated that construction activities within the Project Area will require the management and removal of groundwater from subsurface excavations or structures, as well as accumulated precipitation and runoff. As such, construction activities must

consistently implement proven industry-standard practices to address these conditions, considering the following:

- Minimizing both groundwater inflow and surface runoff entering excavations.
- Reducing the duration of work during which dewatering may be required.
- Pumping, treating, and disposing of dewatering discharge water in accordance with all applicable permitting, licensing, authorizations, and approvals (PLAA).
- Managing water through passive drainage methods, such as diverting surface water or runoff around excavations.
- Protecting nearby groundwater users and the natural environment.
- Conducting environmental monitoring to verify compliance with permits and approvals.
- Performing geotechnical settlement monitoring and implementing mitigation measures as required.
- Maintaining contingency plans to address unanticipated conditions.

4.1 Dewatering Activities

Construction activities for the Project will likely require groundwater management, as localized groundwater seepage may be encountered during temporary excavation works. The assessment of construction dewatering requirements is informed by relevant site information and data, hydrogeological investigations, and the selected construction methodologies.

4.1.1 Short-Term Dewatering Activities

Where construction dewatering is expected during excavation, the Contractor will retain a qualified professional (e.g., hydrogeologist, groundwater specialist, or groundwater subcontractor) to estimate anticipated dewatering effluent volumes. A hydrogeological assessment memo or report shall be prepared, providing the following information to support any registration or permitting requirements:

- Estimated volume of groundwater to be removed for dewatering.
- Procedures for water sampling and determining hydraulic conductivity.
- Laboratory procedures for water quality analysis.
- Proposed water treatment methods, if needed.
- Dimensions and location of any required treatment equipment.
- Locations of dewatering and discharge points.
- Estimated radius of influence of the dewatering activities.
- Description of any permits and approvals listed in Appendix B that apply to dewatering and discharge.

- Identification, where necessary, of potential cut-off systems to reduce or prevent groundwater seepage into the temporary excavation area.
- Locations and construction details of any monitoring wells installed for this project.
- A groundwater monitoring plan for groundwater-dependent features within the predicted radius of influence, confirming that the proposed dewatering will not cause permanent adverse impacts to those features.

4.2 Water Taking Approach

Two types of water taking may occur during construction:

- Routine water taking: Removal of groundwater and/or precipitation less than 50,000 L/day. These takings do not require a PTTW or EASR registration, though local discharge authorizations may still apply.
- Temporary construction dewatering: Removal of groundwater seepage and/or accumulated stormwater exceeding 50,000 L/day. As of July 1, 2025, construction dewatering above this threshold generally requires EASR registration provided the activity meets O. Reg. 63/16 eligibility and operating requirements; there is no longer an upper volumetric cap. Activities not eligible for EASR continue to require a Permit to Take Water (PTTW).

4.2.1 Temporary Storage of Extracted Groundwater

Where dewatering is needed, groundwater and/or stormwater may be directed to temporary settling tanks (e.g., Enviro-Tanks) to reduce total suspended solids (TSS) prior to discharge. Tank size and configuration will be selected based on site staging, anticipated inflow rates, expected water quality, and available discharge or hauling options. If appropriate discharge locations are not available, extracted water will be contained and hauled off-site to an approved receiver per MECP requirements.

Where space is available, lower-volume discharges may be routed to on-site settling areas and allowed to re-infiltrate on-site, subject to applicable approvals, environmental controls, and the approved Erosion and Sediment Control (ESC) Plan.

4.2.2 Transfer and Conveyance of Dewatering Water

Water extracted during dewatering will be conveyed through hoses or pipes from well points, sumps, or pumps to the designated treatment or discharge locations. Construction methods shall be employed to minimize TSS at the point of collection, including proper filter packs, sump construction, pump rate adjustments, and other best practices consistent with EASR activity requirements for erosion and sediment control and effluent management.

4.3 Water Taking Permissions

Water takings associated with construction must comply with OWRA and MECP permitting/registration requirements:

- < 50,000 L/day: No PTTW or EASR registration required.
- > 50,000 L/day construction dewatering:

- EASR registration is required where the activity meets eligibility and operating requirements under O. Reg. 63/16, including Qualified Person (QP) assessments, effluent criteria, ESC measures, documentation, and recordkeeping.
- PTTW is required where the activity does not meet EASR eligibility, including most surface-water dewatering or specialized cases.

4.3.1 Exemptions

- Stormwater-only unwatering (removal of precipitation above the groundwater table) is exempt from EASR registration. The exemption applies even where groundwater dewatering under a PTTW/EASR is also occurring. Standard ESC and quality controls still apply.
- In-stream diversion dewatering associated with certain works (e.g., culverts, bridges) may be considered “not a water taking” or be exempt under O. Reg. 64/16 if water is returned directly to the same water body and upstream/downstream levels are not affected, and ESC and sheen-control conditions are met.

4.4 Dewatering Discharge

4.4.1 Groundwater Quality

Baseline groundwater results from prior investigations serve as a proxy for potential discharge quality; however, excavation and construction can alter water chemistry and increase TSS. Large-scale pumping may also draw water from beyond the investigated area. The dewatering plan will therefore verify quality at the time of discharge and manage TSS and other COPCs accordingly.

De-watering methodology (if required) will need to be submitted to the QP for approval. All dewatering/unwatering discharge will be located at least thirty (30) metres from a watercourse to a sediment filterbag or water treatment system. All water treatment, handling, and discharge activities must comply with every applicable permit, approval, and Department of Fisheries and Oceans requirements. Water discharged either by surface runoff from the Project Area, or from collected groundwater will also need to meet the Oil/Water Separator ECA requirements. No dewatering or unwatering effluent may be released directly into any watercourse, wetland, or forested area, nor may it be allowed to flow onto disturbed soils within the construction zone.

Similarly, pumped water is to be treated before being discharged, a treatment methodology plan is to be submitted to the QP for approval. No pump or other equipment is to be refueled within thirty (30) metres of a water body.

4.4.1.1 Short Term Groundwater Quality and Treatment

Prior to any off-site discharge (municipal/region storm or sanitary) or to the natural environment, representative pre-treatment samples will be collected to identify COPCs and compared against the applicable sewer use by-law limits or PWQO, as relevant. Only water meeting the applicable criteria may be discharged. A site-specific monitoring and mitigation plan will specify parameters and frequencies.

If treatment is required, a mobile treatment system will be deployed. Where such a system is used, an Environmental Compliance Approval (ECA) for the treatment unit is required and its effluent limits must be met at discharge. Compliance sampling will include influent and effluent monitoring per the ECA and receiving authority requirements.

Where discharge quality cannot be achieved, water will be contained and hauled by a licensed waste carrier to an appropriate receiver/facility under applicable regulations.

For all discharges, implement a monitoring program that includes:

- Flow monitoring (spot-checks for very short durations; flow meters when operations run ≥ 24 hours).
- Visual checks (colour, odour, sheen).
- Turbidity monitoring and laboratory sampling for COPCs at frequencies consistent with permits/authorizations.

4.4.2 Routine Discharge Plan (< 50,000 L/d)

For routine takings, quality and quantity will be controlled during execution. Where discharge to municipal/region sewers or to the natural environment is proposed, obtain any short-term discharge authorization required by the municipality/region or conservation authority. Maintain a discharge log consistent with permit conditions. Prior to commencement:

- Install/verify metering devices (as applicable).
- Stage water management equipment and contingencies (on-site storage, vac-truck disposal, infiltration, or compliant discharge to storm/sanitary or natural environment).
- Track daily volumes; when volumes approach 40,000 L/day, implement contingency measures to remain <50,000 L/day.
- Complete required pre-discharge sampling and implement ESC measures before work begins.

4.4.3 Short-Term Discharge Plan

For > 50,000 L/day short-term dewatering:

- If EASR-eligible, complete EASR registration before commencing, and comply with activity requirements (QP assessment, effluent criteria, ESC, records/publication).
- If not EASR-eligible, obtain a PTTW under O. Reg. 387/04 / OWRA s. 34.
- If discharging to municipal/region systems, secure the short-term discharge permit/authorization and meet its limits/monitoring.

4.4.4 Contingency Plan

If dewatering volumes or quality exceed permit/authorization limits or if equipment fails, immediately implement contingency measures, such as:

- Increasing on-site storage (e.g., maintain more additional storage than daily estimate).
- Mobilizing standby haulers for off-site disposal.
- Stopping discharge and re-sampling to confirm compliance.
- Switching discharge routes where permitted and/or adjusting treatment to meet limits.
- Rapid equipment repair/replacement; implement spill response or flood mitigation as needed.

These measures align with EASR activity requirements for spills/ESC and general MECP expectations for environmentally protective operations.

5. Spill Prevention and Contingency

The Contractor shall prepare a Spill Response Plan and an Emergency Response Plan that must contain the information outlined in the following sections.

5.1 Spill Response Procedures

The Contractor can be held legally liable for any spill release or incident. The Contractor shall prepare a Spill Response Plan that complies with all applicable federal, provincial, and municipal legislation, as well as ONTC standards. Upon discovery of a spill, the Contractor shall immediately deploy the necessary equipment and resources to control, contain, and clean up the spill.

In the event of a spill involving fuel, oil, sediment-laden water and/or chemicals, the following steps shall be taken:

1. Stop work and shut down equipment.
2. Move personnel to a safe area.
3. Identify the substance spilled and refer to the Safety Data Sheet (SDS) for appropriate safety procedures.
4. Conduct a hazard assessment and implement necessary controls.
5. Minimize and safely contain the spill.
6. Immediately notify the supervisor, Health, and Safety Manager, ONTC Facility Manager, and ONTC Environmental Manager. Depending on the quantity and type of spill, notify the MECP Spills Action Centre (1-800-268-6060).
7. Alert others if there is a risk to life.

Contain the spill by stopping the flow at its source. Use pails, tarpaulins, barrels, dikes, or berms once it is safe to enter the spill area. A shallow excavation may be used to contain or stop the spread of product. Spills near or in ditches must be cleaned up promptly to prevent the material from entering a waterbody. Once the area is secure and the spill is contained, begin cleanup. Sorbent materials may be used for both containment and

recovery of spilled product. Minimize traffic in and around affected areas. A vacuum truck may be used where appropriate to remove contaminants.

Cleanup materials and tools may include:

- Spill pads and absorbent materials (available in warehouse and trucks)
- Shovels
- Sand, dirt, or similar materials
- Personnel
- Pails, tarpaulins, and drums
- Safety gloves and goggles

Waste handling requirements include:

- All waste shall be handled and removed from the Site by a designated waste hauler.
- The Contractor shall notify ONTC whenever waste is handled or removed from the Site.
- If using drums for waste storage, ensure drums are empty and bungs are intact.
- Clearly label drums or containers with the type of residue or waste contained.
- If unsure of disposal requirements, consult the ONTC Environmental Manager.
- Waste material shall only be removed from the spill site with consent from the ONTC Environmental Manager.
- Documentation is required for waste removal by the Person-in-Charge of the spill (oil, fuel, or chemicals are not domestic waste).

5.2 Environmental Emergency Response

The Contractor shall prepare an Environmental Emergency Response Plan that complies with all applicable federal, provincial, and municipal legislation, as well as ONTC standards. Emergencies that occur during soil and groundwater management may pose immediate risks to soil, groundwater, surface water, air quality, and surrounding ecosystems. To mitigate these risks, spill kits, secondary containment measures, and erosion and sediment control measures shall be implemented as needed. In addition, proper tracking and documentation of soil and groundwater management activities will help prevent cross-contamination between contaminated and non-contaminated materials.

6. Monitoring and Documentation

6.1 Monitoring

Effective monitoring is essential to ensure full compliance with the SGMP. The Project QP, or their delegate, shall oversee all soil management activities within the Project Area

and ensure they are carried out in accordance with applicable environmental and regulatory requirements. In parallel, the Contractor shall appoint a Construction Manager who will be responsible for monitoring all groundwater management activities across the Site.

A monitoring protocol is recommended to be introduced in the form of e.g. an environmental checklist to be completed at a daily frequency to ensure that nuisance effects as outlined in Section 3.1.6 are minimized and soil and groundwater management activities are not introducing potential impacts to downstream receivers. This checklist could include daily sampling requirements for key parameters like pH, TSS, and other COPCs at locations up- and downstream of management activity or excavations.

6.2 Documentation

Accurate and comprehensive documentation is essential to maintaining compliance with the SGMP. Records must be kept for all soil and groundwater management activities, including any environmental concerns encountered during construction. A daily environmental report summarizing environmental checklist findings from in-situ sampling of important parameters/data measurements along with site photos will be required to be provided by the Contractor to ONTC every workday. This will ensure that improper practices or incidents are identified and addressed quickly.

The Project QP is responsible for documenting all soil management activities within the Project Area, while the Contractor's designated Construction Manager shall document all groundwater management operations and any associated environmental issues.

7. Project Area – Specific Soil and Groundwater Management Recommendations

7.1 Soil and Material Management

Based on Section 2.5 detailing the soil sample contamination results, a categorization of soil and materials can be made from the November 2025 investigation results.

In accordance with criteria from O. Regs. 153/04 and 406/19, categories described in Table 3 below can be established.

Table 3: Recommended Soil Reuse / Disposal Locations

Category	MECP Standards/ Criteria Range	Project Sampling Area (and Depth)	Receiving Location Recommendation
Zone 1	Meets Table 8 RPIICC SCS and Table 8.1 ICC ESQS/LSLs (excluding EC and/or SAR)	Soil/Material from TP25-01 to TP25-05 inclusive (0 - 2 mbgs), and TP25-13 (0.3 – 0.85 mbgs)	Soil/Material has a beneficial use within the Project Area if deemed geotechnically suitable: Reuse of Excavated Material On-Site
			Soil/Material is classified as excess: Off-Site location accepting soils meeting MECP Table 8.1 ICC ESQS/LSLs (excluding EC and/or SAR)
Zone 2	Exceeds Table 8.1 ICC ESQS/LSLs but meets Table 2.1 ICC ESQS/LSLs (excluding EC and/or SAR)	Soil/Material from TP25-10 (0.3 – 0.5 mbgs)	Reuse of Excavated Material at an Off-Site location accepting soils meeting MECP Table 2.1 ICC ESQS/LSLs (excluding EC and/or SAR)
Zone 3	Exceeds Table 2.1 ICC ESQS/LSLs but meets Schedule 4 Leachate Criteria and O. Reg. 347 - General Waste Management	Soil/Material from TP25-06 to TP25-09 inclusive (0 – 0.3 mbgs), TP25-11 (0.3 – 0.5 mbgs), and TP25-12 (0 - 0.3 mbgs) located in the southern ditch portion	Disposal at a Landfill

7.1.1 Recommendations

As the Project is still in the design phase and changes may be made in the anticipated excavation soils and materials, additional soil sampling is recommended in line with O. Reg 406/19 if a greater soil excavation volume than 3,600 m^3 is expected (see Table C-1 in Appendix C for required minimum number of samples on a volumetric basis).To support disposal and/or off-site reuse requirements of 3,600 m^3 of excess soil, a minimum of five mSPLP samples are required (to date, three have been taken).

Confirmatory sampling by the Contractor is particularly recommended within the proposed excavation footprint in the southern ditch to accurately delineate the extent of contamination that was previously encountered for Zone 3 soils. The guidelines for confirmatory sampling during excavation are summarized in Section 3.1.4.1.1. If confirmatory sampling identifies soils exceeding the Table 8 RPIICC SCS at or below the excavation grade, and the QP determines that the contamination is adequately characterized and that further removal is not practicable, capping of the affected or disturbed area should be implemented as a risk management measure to protect off-site receptors and limit downstream contaminant migration, thereby demonstrating due diligence.

In-situ sampling with daily monitoring during construction or soil management activities (as outlined in Section 6) is also highly recommended in this area to ensure adherence and compliance with the SGMP at all times. As the excavation footprint for the Project is partially located in a ditch containing run-off water, ensuring no negative impacts to downstream receivers, is crucial.

For ease, it is possible that all excavated materials of all depths within the previously measured Zone 2 and 3 locations be classified as non-hazardous waste (exceeding Table 2.1 ICC ESQS/LSLs but meeting Schedule 4 Leachate Criteria and O. Reg. 347 - General Waste Management) and thus disposed of at a landfill. As per analytical results, it can be assumed that at minimum 0.3 metres will need to be removed as per observed contamination levels in these Zones.

Figure 5 shows the estimated horizontal delineation of soil quality as per the soil analysis results grouping Zone 2 with Zone 3, and Table 4 shows the anticipated conservative estimated soil volumes to be managed. Volumes were calculated via widths and depths shown in Drawing No. H375313-1011-022-251-0009 (0.3 mbgs) for the northern and southern ditch designs, and a conservative excavation depth of up to two metres (2 mbgs) in the field around the proposed track location. Reference to the Schedule of Prices in the Form of Tender (Document H375313-1011-220-210-0001, Rev. 3) shall be made for the costing of contaminated and non-contaminated soil removal and disposal.

While Table 4 and Figure 5 show approximate volumes and zones, respectively, samples taken to date are not sufficient in number to satisfy O. Reg 406/19 for characterization of the entire Project Area and volumes listed. Verification sampling by the Contractor is highly recommended for due diligence purposes prior to backfilling, especially if further excavation may be required in locations or at depths not characterized by previous sampling results.

Figures 6, 6A, and 6B detail the approximate vertical delineation of contamination according to the November 2025 Geoenvironmental Investigation results across Zones 1, and Zones 2 and 3. Test pits sampled were projected onto nearest proposed design locations of the southern ditch and track centerline.

Table 4: Anticipated Soil Volumes per Zones

Zone	Depth (mbgs)	Area (m^2)	Approximate Maximum Tonnage (tonnes)*	Approximate Soil Volume (m^3)	Receiving Location Recommendation
Zone 1	0.5 (minimum) or 2 (maximum), 0.3 only for the northern ditch	1.02×10^4	46.8	4.08×10^3 (minimum) – 2.34×10^4 (maximum)	Soil/Material has beneficial use within the Project Area if deemed geotechnically suitable: Reuse of Excavated Material On-Site Soil/Material is classified as excess: Off-Site location accepting soils meeting MECP Table 8.1 ICC ESQS/LSLs (excluding EC and/or SAR)
Zones 2 and 3	0.5 (minimum) or 2 (maximum), 0.3 only for the southern ditch	1.12×10^4	43.0	6.5×10^3 (minimum) – 2.15×10^4 (maximum)	Disposal at a Landfill

*Assuming an approximate soil density of 2 kg/m^3 as per soil types encountered during sampling

Materials used in active railyard operations, such as treated rail ties, fuels, lubricants, and other maintenance-related products, have the potential to contribute to soil and groundwater impacts if not properly handled and stored. Observed impacts on-site indicate that historical or ongoing material management practices could be contributing to localized contamination. As part of continuous environmental due diligence, the site could consider enhanced handling, storage, and inspection procedures for materials with known contaminant potential, along with periodic review of monitoring data to assess the effectiveness of these measures and identify opportunities for improvement.

7.2 Groundwater Management

Groundwater analytical results identified exceedances of PWQO at monitoring well MW25-01, specifically for dissolved metals. As a result, groundwater originating from this location is not suitable for direct discharge to surface water without appropriate treatment or management measures. Extracted groundwater is likely to require on-site treatment or containment and off-site disposal during construction, consistent with MECP requirements for dewatering effluent and applicable discharge criteria.

7.2.1 Recommendations

A post-construction Groundwater Monitoring Plan is recommended for sampling at a quarterly or bi-annual frequency to confirm plume behaviour, evaluate whether exceedances are stable, and assess whether the plume is migrating. If the existing monitoring wells need to be decommissioned during construction activities, additional monitoring wells are recommended to be installed after construction to ensure due diligence with monitoring potential off-site migration of impacts. After several consecutive monitoring events showing stable conditions, the plume may be considered stable/non-expanding; however, compliance for discharge purposes must still be demonstrated.

8. References

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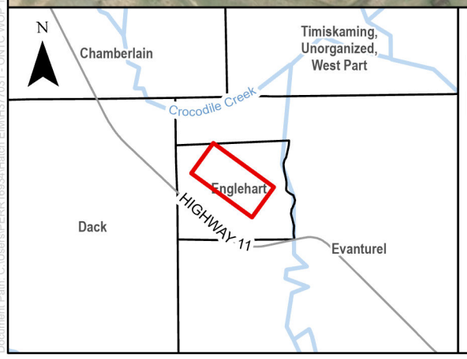
[6] Ministry of the Environment, Conservation and Parks (MECP), "Ontario Regulation 153/04 Records of Site Condition - Part XV.1 of the Environmental Protection Act," 23 October 2025. [Online]. Available: https://www.ontario.ca/laws/regulation/040153. [Accessed 2026].

[7] Ministry of the Environment, Conservation and Parks (MECP), "Ontario Regulation 406/19: On-Site and Excess Soil Management," 4 December 2019. [Online]. Available: https://www.ontario.ca/laws/regulation/r19406#BK1. [Accessed 2026].

[8] Ministry of the Environment, Conservation and Parks (MECP), "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act," 15 April 2011. [Online]. Available: https://www.ontario.ca/page/soil-ground-water-and-sediment-standards-use-under-part-xv1-environmental-protection-act. [Accessed 2026].

Figures

Microsoft, Vantor



LEGEND

- Project Area
- Unevaluated Wetland

NOTES:

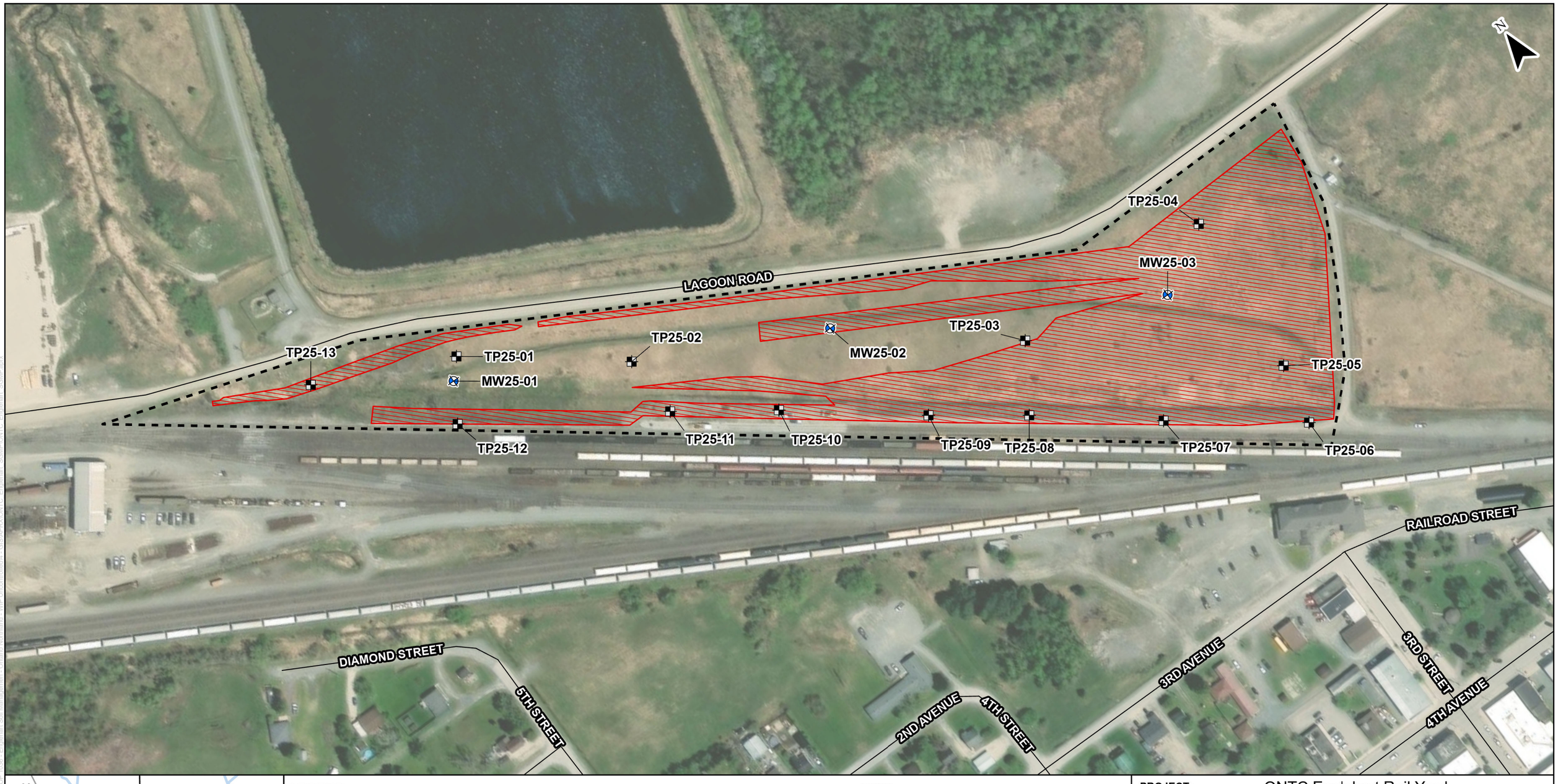
1. Produced by Hatch, contains information licensed under the Open Government Licence – Ontario
2. Spatial referencing: NAD 1983 UTM Zone 17N
3. All Monitoring Wells drilled by Hatch during 2025 Geotechnical Investigation
4. Wetlands - Ontario Ministry of Natural Resources and Forestry, January 19, 2026. Wetland boundaries modified to reflect current land use

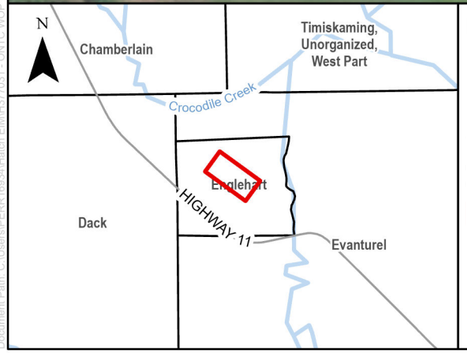
0 40 80 160 Meters

1:3,000

PROJECT:	ONTC Englehart Rail Yard Soil and Groundwater Management Plan
FIGURE TITLE:	Project Area
CLIENT:	ONTC

DWG BY:	CHK BY:	FIG NO.:	REV NO.:	
S. PERRY	P. VATANI	1	A	HATCH
DATE: 15/04/26	**PAGE:** 1			





LEGEND

- Approximate Test Pit Location
- Monitoring Well by Hatch (2025)
- Road
- Project Area
- Proposed Excavation Area

NOTES:
1. Produced by Hatch, contains information licensed under the Open Government Licence – Ontario
2. Spatial referencing: NAD 1983 UTM Zone 17N
3. All Monitoring Wells drilled by Hatch during 2025 Geotechnical Investigation

0 25 50 100 Meters
1:2,000

PROJECT:	ONTC Englehart Rail Yard Soil and Groundwater Management Plan
FIGURE TITLE:	Monitoring Wells and Test Pit Location Plan
CLIENT:	ONTC

DWG BY:	CHK BY:	FIG NO.:	REV NO.:
S. PERRY	P. VATANI	2	A
DATE: 24/03/26	**PAGE:** 1		

HATCH

Sample ID	Sample Depth (mbgs)	Parameter Group	Parameter	Table 8 RPIICC SCS / Table 8.1 ICC ESQS	Table 2.1 ICC ESQS	Concentration (µg/g)
TP25-11-S1	0.3 - 0.5	Metals and Inorganics	Antimony	1.3	40	19.4
			Arsenic	18	18	373
			Cadmium	1.2	1.9	9.0
			Cobalt	22 / 40	80	48.0
			Copper	92	230	3970
			Lead	120	120	1490
			Mercury	0.27	0.27	1.1
			Molybdenum	2	40	8.3
			Selenium	1.5	5.5	11.6
			Silver	0.5	40	21.0
			Zinc	290	340	1550
		PHCs	F2 (C10-C16)	10	26	11
			F3 (C16-C34)	240	240	506
			F4 (C34-C50)	120	3300	218
		VOCs and BTEX	Xylenes (Total)	0.05	0.091	0.28
		PAHs	Anthracene	0.22 / 0.16	0.16	0.25
			Benzo(a)pyrene	0.3 / 0.31	0.31	0.55
			Benzo[b]fluoranthene	0.47	3.2	0.64
			Indeno(1,2,3-cd)pyrene	0.23	0.76	0.43
			2-Methylnaphthalene	0.59 / -	-	0.63
			Naphthalene	0.09	0.2	0.53

Sample ID	Sample Depth (mbgs)	Parameter Group	Parameter	Table 8 RPIICC SCS / Table 8.1 ICC ESQS	Table 2.1 ICC ESQS	Concentration (µg/g)
TP-12-S1	0 - 0.3	Metals and Inorganics	Antimony	1.3	40	8.5
			Arsenic	18	18	244
			Cadmium	1.2	1.9	1.6
			Copper	92	230	798
			Lead	120	120	467
			Mercury	0.27	0.27	1.4
			Molybdenum	2	40	13.9
			Selenium	1.5	5.5	50.9
			Silver	0.5	40	46.2
			Thallium	1	3.3	1.4
			Zinc	290	340	454
		PHCs	F2 (C10-C16)	10	26	49
		VOCs and BTEX	Benzene	0.02	0.02	0.33
			Ethylbenzene	0.05	0.05	0.76
			Toluene	0.2	0.2	2.5
			Xylenes (Total)	0.05	0.091	5.83
		PAHs	1-Methylnaphthalene	0.59 / -	-	2.04
			2-Methylnaphthalene	0.59 / -	-	2.55
			Naphthalene	0.09	0.2	1.95
			Phenanthrene	0.69	12	1.06

Sample ID	Sample Depth (mbgs)	Parameter Group	Parameter	Table 8 RPIICC SCS / Table 8.1 ICC ESQS	Table 2.1 ICC ESQS	Concentration (µg/g)
TP25-10-S1	0.3 - 0.5	Metals and Inorganics	Zinc	290	340	309

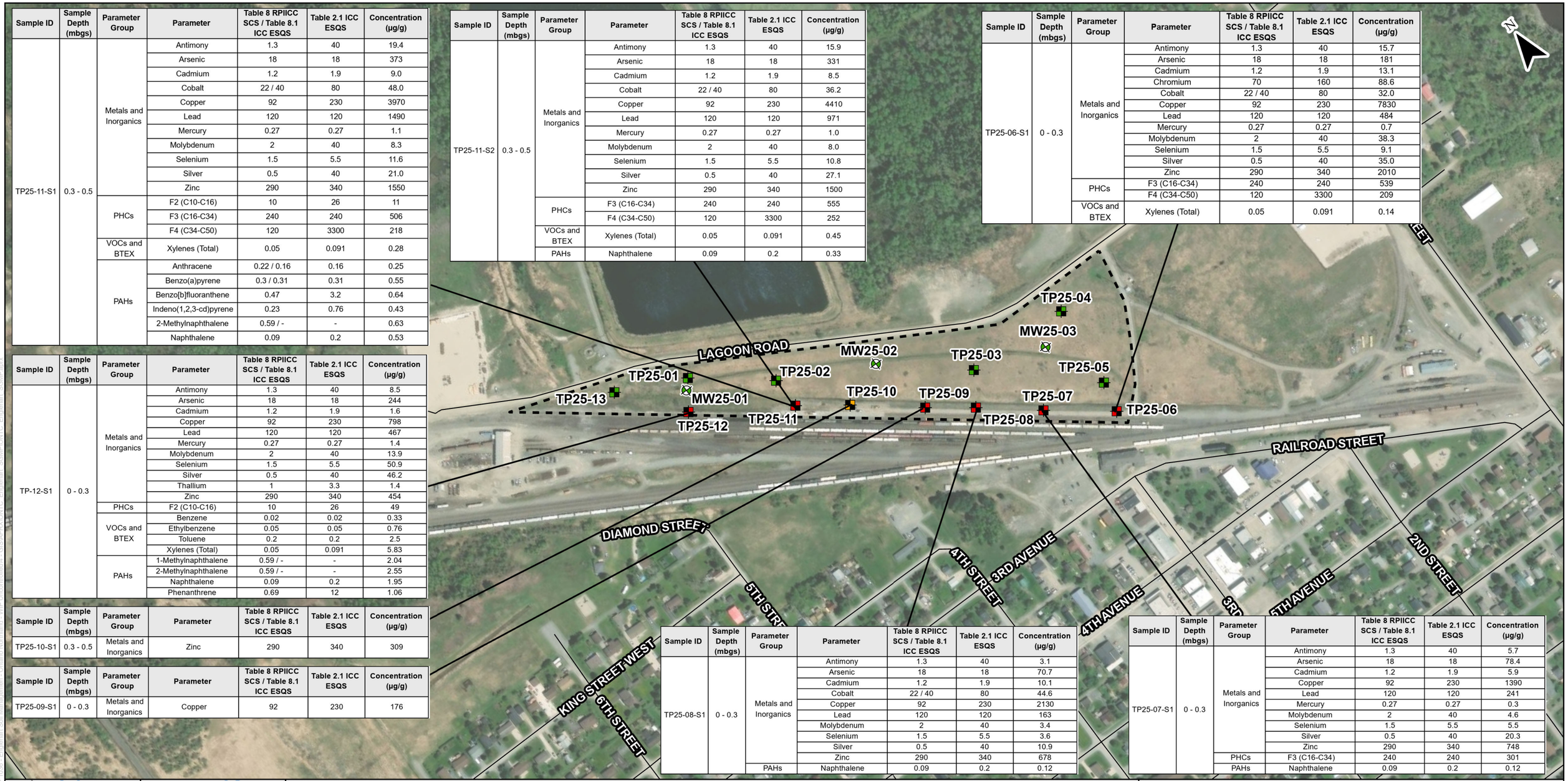
Sample ID	Sample Depth (mbgs)	Parameter Group	Parameter	Table 8 RPIICC SCS / Table 8.1 ICC ESQS	Table 2.1 ICC ESQS	Concentration (µg/g)
TP25-09-S1	0 - 0.3	Metals and Inorganics	Copper	92	230	176

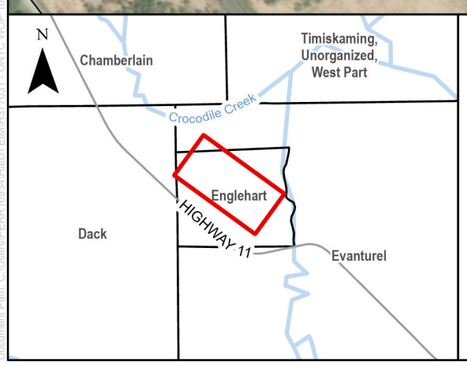
Sample ID	Sample Depth (mbgs)	Parameter Group	Parameter	Table 8 RPIICC SCS / Table 8.1 ICC ESQS	Table 2.1 ICC ESQS	Concentration (µg/g)
TP25-11-S2	0.3 - 0.5	Metals and Inorganics	Antimony	1.3	40	15.9
			Arsenic	18	18	331
			Cadmium	1.2	1.9	8.5
			Cobalt	22 / 40	80	36.2
			Copper	92	230	4410
			Lead	120	120	971
			Mercury	0.27	0.27	1.0
			Molybdenum	2	40	8.0
			Selenium	1.5	5.5	10.8
			Silver	0.5	40	27.1
			Zinc	290	340	1500
		PHCs	F3 (C16-C34)	240	240	555
			F4 (C34-C50)	120	3300	252
		VOCs and BTEX	Xylenes (Total)	0.05	0.091	0.45
		PAHs	Naphthalene	0.09	0.2	0.33

Sample ID	Sample Depth (mbgs)	Parameter Group	Parameter	Table 8 RPIICC SCS / Table 8.1 ICC ESQS	Table 2.1 ICC ESQS	Concentration (µg/g)
TP25-06-S1	0 - 0.3	Metals and Inorganics	Antimony	1.3	40	15.7
			Arsenic	18	18	181
			Cadmium	1.2	1.9	13.1
			Chromium	70	160	88.6
			Cobalt	22 / 40	80	32.0
			Copper	92	230	7830
			Lead	120	120	484
			Mercury	0.27	0.27	0.7
			Molybdenum	2	40	38.3
			Selenium	1.5	5.5	9.1
			Silver	0.5	40	35.0
			Zinc	290	340	2010
		PHCs	F3 (C16-C34)	240	240	539
			F4 (C34-C50)	120	3300	209
		VOCs and BTEX	Xylenes (Total)	0.05	0.091	0.14

Sample ID	Sample Depth (mbgs)	Parameter Group	Parameter	Table 8 RPIICC SCS / Table 8.1 ICC ESQS	Table 2.1 ICC ESQS	Concentration (µg/g)
TP25-08-S1	0 - 0.3	Metals and Inorganics	Antimony	1.3	40	3.1
			Arsenic	18	18	70.7
			Cadmium	1.2	1.9	10.1
			Cobalt	22 / 40	80	44.6
			Copper	92	230	2130
			Lead	120	120	163
			Molybdenum	2	40	3.4
			Selenium	1.5	5.5	3.6
			Silver	0.5	40	10.9
			Zinc	290	340	678
		PAHs	Naphthalene	0.09	0.2	0.12

Sample ID	Sample Depth (mbgs)	Parameter Group	Parameter	Table 8 RPIICC SCS / Table 8.1 ICC ESQS	Table 2.1 ICC ESQS	Concentration (µg/g)
TP25-07-S1	0 - 0.3	Metals and Inorganics	Antimony	1.3	40	5.7
			Arsenic	18	18	78.4
			Cadmium	1.2	1.9	5.9
			Copper	92	230	1390
			Lead	120	120	241
			Mercury	0.27	0.27	0.3
			Molybdenum	2	40	4.6
			Selenium	1.5	5.5	5.5
			Silver	0.5	40	20.3
			Zinc	290	340	748
		PHCs	F3 (C16-C34)	240	240	301
		PAHs	Naphthalene	0.09	0.2	0.12





LEGEND

- Soil Sample meeting MECP Table 8 RPIICC SCS and Table 8.1 ICC ESQS/ LSLs, except EC and SAR
- Soil Sample exceeding Table 8.1 ICC ESQS/LSLs but meeting Table 2.1 ICC ESQS/LSLs, except EC and SAR
- Soil Sample exceeding Table 2.1 ICC ESQS/LSLs
- Road
- Project Area

NOTES:
1. Produced by Hatch, contains information licensed under the Open Government Licence – Ontario
2. Spatial referencing: NAD 1983 UTM Zone 17N
3. All Monitoring Wells drilled by Hatch during 2025 Geotechnical Investigation

0 50 100 200 Meters
1:4,000

PROJECT: ONTC Englehart Rail Yard Soil and Groundwater Management Plan

FIGURE TITLE: Soil Exceedances

CLIENT: ONTC

DWG BY:	CHK BY:	FIG NO.:	REV NO.:
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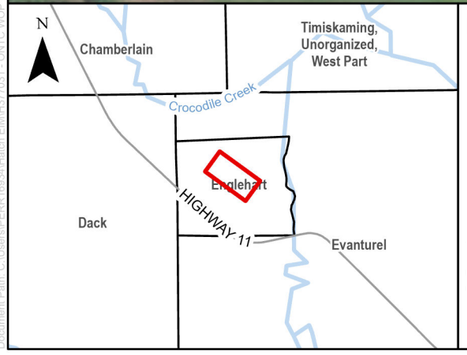
DATE: 24/03/26	**PAGE:** 1		

HATCH

Sample ID	Parameter Group	Parameter	Table 8 SCS	PWQO	Concentration (µg/L)
BH25-01	Metals and Inorganics	Cobalt	3.8	0.9	1.2
		Copper	69	1	3.9
		Uranium	20	5	5.6
DUP-01		Cobalt	3.8	0.9	1.2
		Copper	69	1	4.3
		Uranium	20	5	6



LEGEND

- Approximate Test Pit Location
- Groundwater Sample meeting MECP Table 8 SCS but exceeding PWQO
- Groundwater Sample meeting MECP Table 8 SCS and PWQO
- Road
- Project Area

NOTES:
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2. Spatial referencing: NAD 1983 UTM Zone 17N
3. All Monitoring Wells drilled by Hatch during 2025 Geotechnical Investigation

0 25 50 100 Meters
1:2,000

PROJECT:	ONTC Englehart Rail Yard Soil and Groundwater Management Plan
FIGURE TITLE:	Groundwater Exceedances
CLIENT:	ONTC

DWG BY:	CHK BY:	FIG NO.:	REV NO.:
S. PERRY	P. VATANI	4	A
DATE: 24/03/26	**PAGE:** 1		

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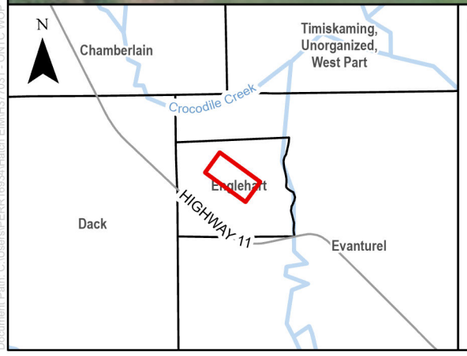
Microsoft, Vantor



LEGEND

- Soil Sample meeting MECP Table 8 RPIICC SCS and Table 8.1 ICC ESQS/LSLs, except EC and SAR
- Soil Sample exceeding Table 8.1 ICC ESQS/LSLs but meeting Table 2.1 ICC ESQS/LSLs, except EC and SAR
- Soil Sample exceeding Table 2.1 ICC ESQS/LSLs
- Approximate Horizontal Zone Delineation
- Road
- Project Area

Proposed Excavation Area

- Zone 1 : Soil meeting MECP Table 8 RPIICC SCS and Table 8.1 ICC ESQS/LSLs, except EC and SAR
- Zones 2 and 3: Soil exceeding MECP Table 2.1 ICC ESQS/LSLs

NOTES:
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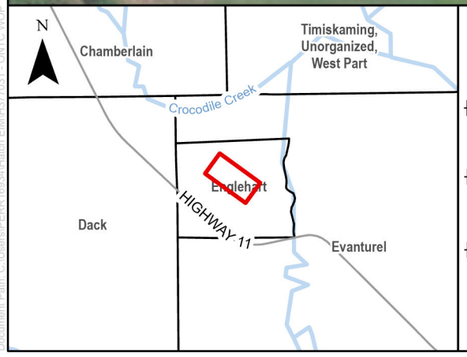
2. Spatial referencing: NAD 1983 UTM Zone 17N
3. All Monitoring Wells drilled by Hatch during 2025 Geotechnical Investigation
4. See Section 7 from the Soil and Groundwater Management Report for more details regarding delineation

0 25 50 100 Meters
1:2,000

PROJECT:	ONTC Englehart Rail Yard Soil and Groundwater Management Plan
FIGURE TITLE:	Approximate Soil Zone Delineation
CLIENT:	ONTC

DWG BY:	CHK BY:	FIG NO.:	REV NO.:
S. PERRY	P. VATANI	5	A
DATE: 24/03/26	**PAGE:** 1		

HATCH



LEGEND

- Soil Sample meeting MECP Table 8 RPIICC SCS and Table 8.1 ICC ESQS/LSLs, except EC and SAR
- Soil Sample exceeding Table 8.1 ICC ESQS/LSLs but meeting Table 2.1 ICC ESQS/LSLs, except EC and SAR
- Soil Sample exceeding Table 2.1 ICC ESQS/LSLs
- Proposed Top of Southern Ditch
- Proposed Track Centerline
- Road
- Project Area

Proposed Excavation Area

- Zone 1 : Soil meeting MECP Table 8 RPIICC SCS and Table 8.1 ICC ESQS/LSLs, except EC and SAR
- Zones 2 and 3: Soil exceeding MECP Table 2.1 ICC ESQS/LSLs

NOTES:
1. Produced by Hatch, contains information licensed under the Open Government Licence – Ontario
2. Spatial referencing: NAD 1983 UTM Zone 17N
3. All Monitoring Wells drilled by Hatch during 2025 Geotechnical Investigation
4. Test pit locations are approximate along the existing ditch alignment
5. See Section 7 from the Soil and Groundwater Management Report for more details regarding delineation
6. Locations of proposed design alignments as shown in Drawings No. H375313-1011-220-271-0001 and H375313-1011-220-251-0002, for the Track Centerline and Top of Southern Ditch, respectively
7. See Figures 6A and 6B for Elevation Profiles

0 25 50 100 Meters

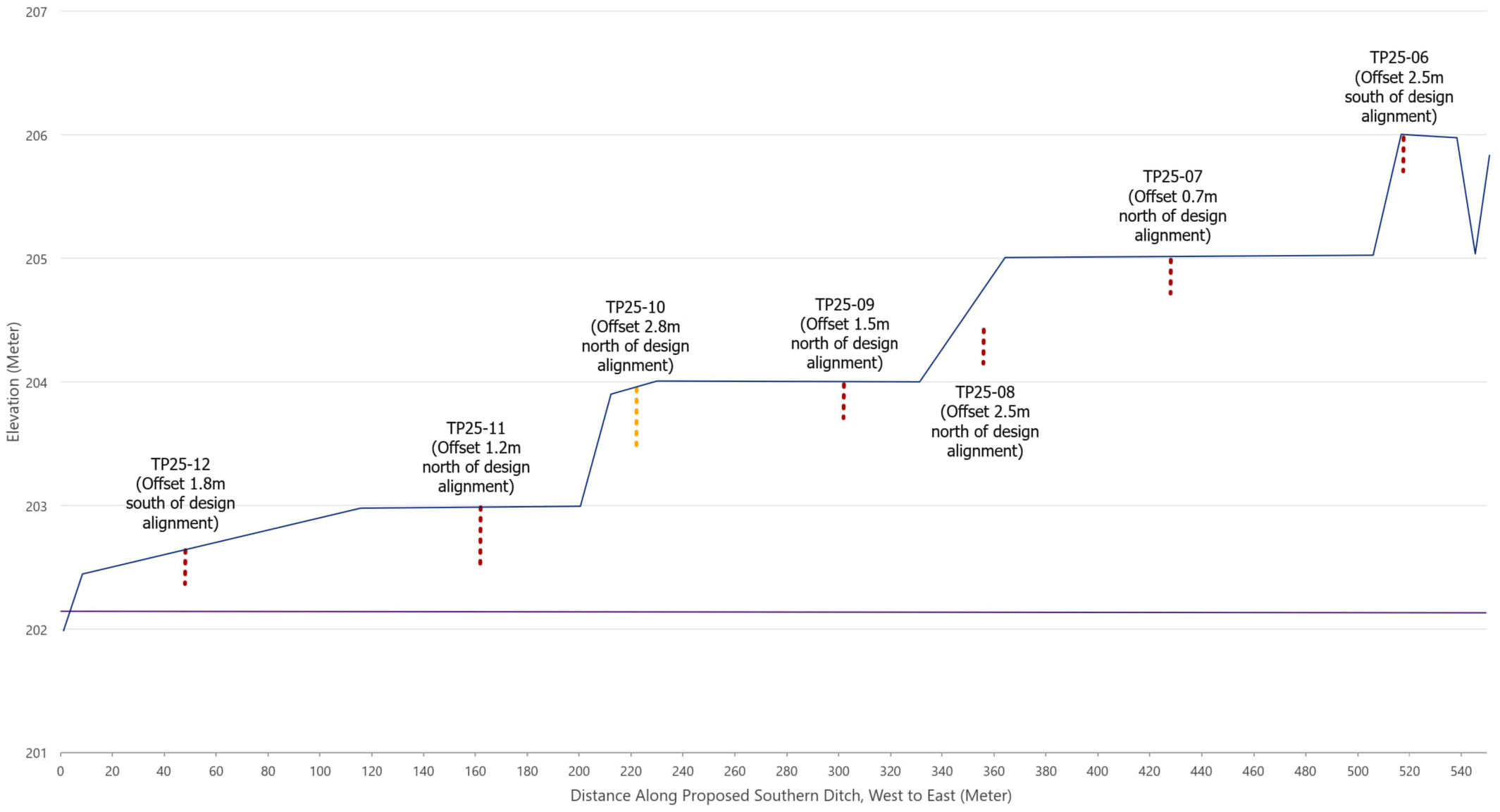
1:2,000

PROJECT:	ONTC Englehart Rail Yard Soil and Groundwater Management Plan
FIGURE TITLE:	Proposed Track and Southern Ditch Design Locations
CLIENT:	ONTC

DWG BY:	CHK BY:	FIG NO.:	REV NO.:
S. PERRY	P. VATANI	6	A
DATE: 15/04/26	**PAGE:** 1		

HATCH

Elevation Profiles Along Proposed Southern Ditch



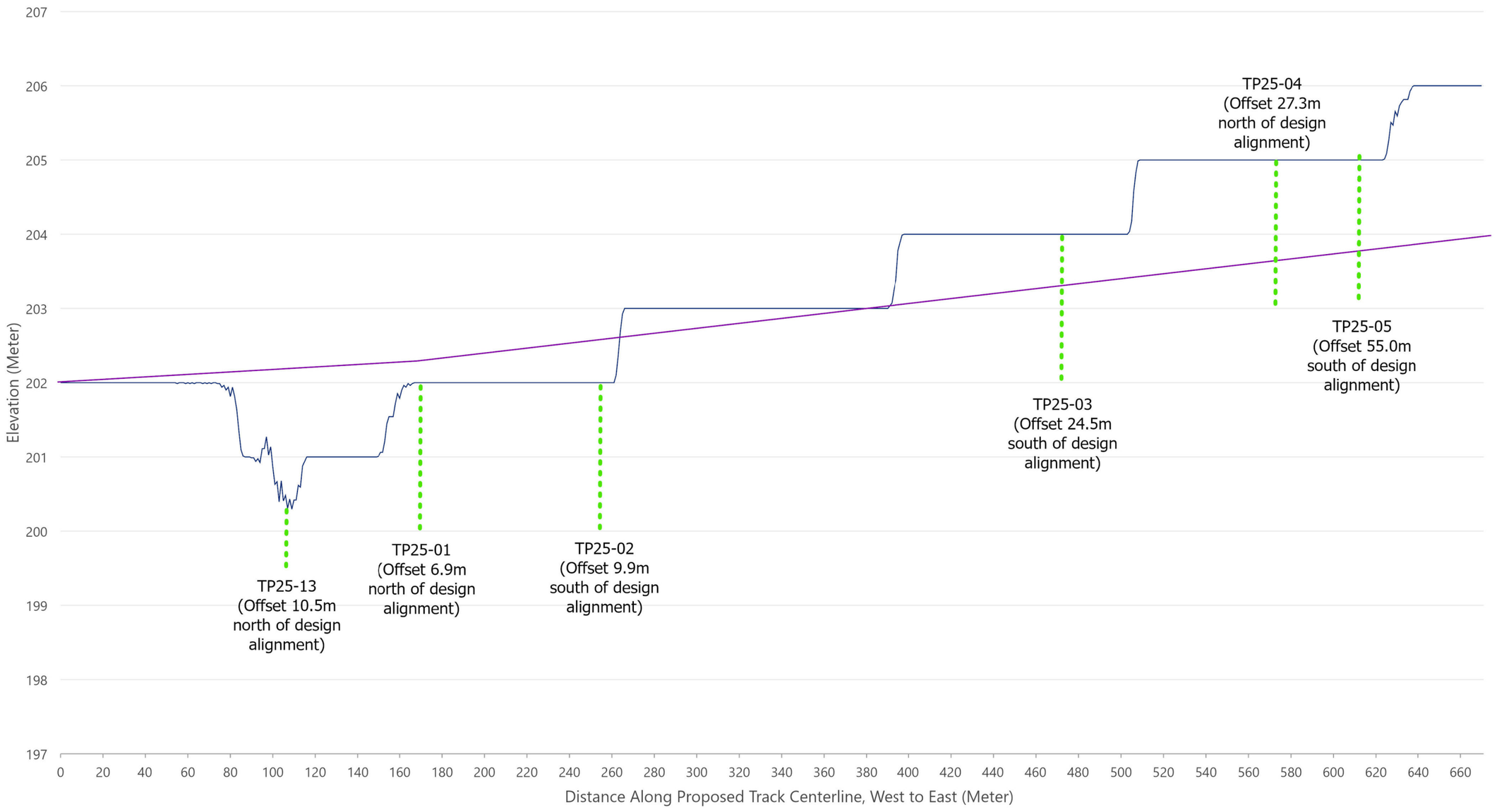
LEGEND

- Existing Ground Elevation at Proposed Top of Southern Ditch (m)
- Proposed Design Elevation of Top of Southern Ditch (m)
- Approximate Projected Test Pit (Offset from Alignment) in Zone 2: Soil exceeding MECP Table 8.1 ICC ESQS/LSLs but meeting Table 2.1 ICC ESQS/LSLs, except EC and SAR
- Approximate Projected Test Pit (Offset from Alignment) in Zone 3: Soil exceeding MECP Table 2.1 ICC ESQS/LSLs

NOTES:
1. Produced by Hatch
2. See Section 7 from the Soil and Groundwater Management Report for more details regarding delineation
3. Approximate test pit locations projected onto design alignment, locations of proposed design and elevations depicted as shown in Drawing No. H375313-1011-220-251-0002
4. Existing ground elevations sourced from LiDAR survey conducted by Hatch, as referenced in Note 2 (General Notes) in Drawing No. H375313-1011-220-251-0008

PROJECT:	ONTC Englehart Rail Yard Soil and Groundwater Management Plan			
FIGURE TITLE:	Elevation Profile of Proposed Southern Ditch			
CLIENT:	ONTC			
DWG BY: S. PERRY	**CHK BY:** P. VATANI	**FIG NO.:** 6A	**REV NO.:** A	HATCH
DATE: 23/04/26	**PAGE:** 1			

Elevation Profiles Along Proposed Track Centerline



LEGEND

- Existing Ground Elevation at Proposed Track Centerline (m)
- Proposed Design Elevation of Track Centerline (m)
- Approximate Projected Test Pit (Offset from Alignment) in Zone 1: Soil meeting MECP Table 8 RPIICC SCS and Table 8.1 ICC ESQS/LSLs, except EC and SAR

NOTES:
1. Produced by Hatch
2. See Section 7 from the Soil and Groundwater Management Report for more details regarding delineation
3. Approximate test pit locations projected onto design alignment, locations of proposed design and elevations depicted as shown in Drawing No. H375313-1011-220-271-0001
4. Existing ground elevations sourced from LiDAR survey conducted by Hatch, as referenced in Note 2 (General Notes) in Drawing No. H375313-1011-220-251-0008

PROJECT:	ONTC Englehart Rail Yard Soil and Groundwater Management Plan			
FIGURE TITLE:	Elevation Profile of Proposed Track Centerline			
CLIENT:	ONTC			
DWG BY: S. PERRY	**CHK BY:** P. VATANI	**FIG NO.:** 6B	**REV NO.:** A	HATCH
DATE: 23/04/26	**PAGE:** 1			

Appendix A
Glossary of Terms and Acronyms

Acronym/Term	Definition
ABNs	Acid Base Neutrals
Analytical Protocol	The Ministry of Environment, Conservation and Park's Protocol for Analytical Methods used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality, February 2021
APEC	Area of Potential Environmental Concern
APU	Assessment of Past Uses
ARA	Aggregate Resources Act
BMPs	Best Management Practices
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CALA	Canadian Association for Laboratory Accreditation
CNVMP	Construction Noise and Vibration Management Plan
COC	Chain-of-Custody
COPCs	Contaminants of Potential Concern
CPs	Chlorophenols
DMP	Dust Management Plan
EC	Electrical Conductivity
ECA	Environmental Compliance Approval
ESDAR	Excess Soil Destination Assessment Report
EPA	Environmental Protection Act (Ontario)
ESA	Environmental Site Assessment
ESC	Erosion and Sediment Control Plan
ESQS	Excess Soil Quality Standard
FOC	Fraction of Organic Carbon
HWS	Hot Water Soluble
ICC	Industrial/Commercial/Community
IFC	Issued for Construction
LSL	Leachate Screening Levels
L/d	Litres Per Day
masl	Metres Above Sea Level
mbgs	Metres Below Ground Surface
MNRF	Ministry of Natural Resources and Forestry
MECP	Ministry of Environment, Conservation and Parks
mSPLP	Modified Synthetic Precipitate Leaching Procedure
OCPs	Organochlorine Pesticides
O. Reg.	Ontario Regulation
PAHs	Polycyclic Aromatic Hydrocarbons
PCA	Potentially Contaminating Activity
PCBs	Polychlorinated Biphenyls
PHCs	Petroleum Hydrocarbons
PLAA	Permits, Licenses, Authorizations, Approvals

Acronym/Term	Definition
PTTW	Permit To Take Water
PWQO	Provincial Water Quality Objectives
QA/QC	Quality Assurance / Quality Control
QP	Qualified Person
SAP	Sampling Analysis Plan
SAR	Sodium Adsorption Ratio
SCC	Standards Council of Canada
SCR	Soil Characterization Report
SCS	Site Condition Standard
SDS	Safety Data Sheet
SGMP	Soil and Groundwater Management Plan
SPCM	Single-Point Compliance Method
TCLP	Toxicity Characteristic Leachate Procedure
THMs	Trihalomethanes
TSSA	Technical Standards and Safety Authority
VOCs	Volatile Organic Compounds

Appendix B
Reference, Guidance, and Other Relevant Documents

B.1 Key Acts, Regulations and Guidance Documents

Activities related to the Project must be conducted in accordance with applicable environmental legislation, regulated by various federal, provincial, municipal agencies as well as conservation authorities. A summary of key regulations and guidance documents relevant to the preparation of this SGMP is presented in Table B-1. Additional regulations and guidance documents that were considered as part of the preparation of this document and are applicable to the Project are presented in Table B-2.

Table B - 1: Key Regulations and Guidance Documents

Legislation or Guidance	Governing Agency	Description	Applicability
Environmental Protection Act, R.S.O. 1990, c. E.19			
Ontario Regulation 406/19: On-site and Excess Soil Management	MECP	Provides a regulatory framework for the management (including the sampling, testing, handling, storing, transporting, treatment and placement) of excavated soils and the conditions under which such soils are or are not regulated as waste.	Documents the requirements for handling and management of soil that will be dispositioned for reuse and/or disposal.
Rules for Soil Management and Excess Soil Quality Standards	MECP	A companion document to O. Reg. 406/19 that contains the excess soil quality standards and rules that must be adhered to when managing soil.	
Ontario Regulation 153/04: Record of Site Condition	MECP	Provides a framework for the assessment and cleanup of environmentally impacted property.	Defines various property uses, requirements for selection of appropriate site condition standards, qualified persons requirements, Environmental Site Assessment (ESA) requirements, certain Assessment of Past Use (APU) requirements, and Record of Site Condition applicability.
Soil, Groundwater, and Sediment Standards for Use Under Part XV.1 of the EPA	MECP	Consists of Tables 1 to 9 Site Condition Standard (SCS) that outline the prescribed contaminants and the applicable site condition standards for those contaminants for the purposes of the Environmental Protection Act (EPA).	Outlines general soil, groundwater and sediment investigation conduct, sampling methodology and requirements, waste management, as well as spill prevention requirements (O. Reg. 360).
Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the EPA and Excess Soil Quality	MECP	Describes the analytical parameters and procedures that must be followed for the analysis of environmental media, including applicable standards.	Defines the management, handling and analysis procedure that will be followed by analytical laboratories when analyzing samples.

Legislation or Guidance	Governing Agency	Description	Applicability
Ontario Regulation 347: General – Waste Management	MECP	Applies to the transport of waste from the location of generation to a landfill site authorized to receive specific wastes.	Defines the waste categories, requirements for registration and manifesting, exemptions, and leachate criteria.
Ontario Regulation 351/12: Registrations Under Part II.2 of the Act - Waste Management Systems	MECP	Provides guidance on registrant requirements and provides an overview of Ontario's waste management rules and the requirements for generators, carriers, and receivers of subject waste.	
Ontario Regulation 419/05: Air Pollution – Local Air Quality	MECP	Regulates air contaminants released by commercial and industrial activities.	Applies to construction activities such as vehicle/machinery/equipment operation, dust generation, etc.
Ontario Regulation 903: Wells	MECP	Prescribes the minimum construction, maintenance, reporting, and abandonment requirements for groundwater wells.	Groundwater monitoring wells may be sampled or installed as part of site characterization activities.
Technical Standards Safety Act, Ontario Regulation 217/01	Technical Standards and Safety Authority	Enhances public safety by providing administration of technical standards with respect to boilers and pressure vessels, fuels, and operating engineers.	Applies to facilities where gasoline or an associated product is handled.
Occupational Health and Safety Acy, R.S.O. 1990			
Ontario Regulation 490/09: Designated Substances	MECP	Regulates exposure to designated substances such as acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica, and vinyl chloride.	In the event material containing designated substances or asbestos is encountered on this Project, these regulations will guide the management and handling of the material.
Ontario Regulation 278/05: Asbestos on Construction Projects and in Buildings and Repair Operations	MECP	Regulates asbestos on construction projects.	

Legislation or Guidance	Governing Agency	Description	Applicability
Ontario Regulation 213/91: Construction Projects	Ministry of Labour, Immigration, Training and Skills Development	Regulates requirements for protective clothing, equipment and devices, hygiene, housekeeping, equipment, and other aspects of construction sites, specifically excavations, tunnels, and work in compressed air under the Occupational Health and Safety Act.	A constructor must file an Notice of Project before construction begins if any of the triggers in s. 6 apply (e.g., total expected labour + material cost > $50,000, or >$250,000 if the project is confined to an auto manufacturing/assembly factory; plus several hazard-based triggers).
Ontario Water Resources Act (OWRA), R.S.O. 1990			
Ontario Regulation 387/04: Water Taking and Transfer, O. Reg. 63/16: Registration Under Part II.2 of the Act – Water Taking and O. Reg. 64/16: Water Taking and Transfer	MECP	Conserves, protects, and manages Ontario's waters and ensures efficient and sustainable use. Regulates water taking and transfer permissions (PTTW vs. EASR) and related exemptions.	Section 34 of the OWRA requires a Permit to Take Water (PTTW) for most takings > 50,000 L/day unless exempt or eligible for EASR registration. Construction site dewatering >50,000 L/day generally registers on the EASR if it meets O. Reg. 63/16 eligibility and activity requirements (no upper volumetric cap as of July 1, 2025); otherwise a PTTW is required. O. Reg. 64/16 provides clarifications/exemptions (e.g., stormwater-only unwatering; certain in-stream diversion conditions) provided all conditions and any other required approvals are met.
Section 53: Environmental Compliance Approval (ECA) – Industrial Sewage	MECP		No person shall use, operate, establish, alter, extend, or replace new or existing sewage works except under and in accordance with an environmental compliance approval (ECA). If dewatering effluent requires treatment and/or to the natural environment, an ECA for the treatment system/outfall is typically required (unless an exemption applies). Mobile treatment systems used on construction sites are commonly authorized via temporary/mobile ECAs with effluent limits and monitoring.

Table B - 2: Additional Regulations and Guidance Documents

Legislation or Guidance	Governing Agency	Description	Project Applicability
Accessibility for Ontarians with Disabilities Act	Ministry of Economic Development, Job Creation and Trade	Sets out a process for development and enforcing accessibility standards.	Applies to any organization that provides services or facilities or owns or occupies a building, structure, or premises.
Aggregate Resources Act	MECP	Provides for the management of the aggregate resources of Ontario; control and regulation of aggregate operations on Crown and private lands; requirements for the rehabilitation of land from which aggregate has been excavated; and minimization of adverse impact on the environment in respect of aggregate operations.	Defines aggregates, permits pits/quarries and topsoil facilities. In addition, it outlines proper documentation that is required for importation of fill materials such as aggregates.
Canada Labour Code (RSC, 1985, c. L-2)	Government of Canada	Defines the rights and responsibilities of workers and employers in federally regulated workplaces and sets out federal labour law.	Railways are considered a federally regulated workplace.
Canada Transportation Accident Investigation and Safety Board Act (S.C. 1989, c.3)	Government of Canada	Establishes the Canada Transportation Accident Investigation and Safety Board, and advances transportation safety by investigating marine, pipeline, rail and aviation occurrences and communicating risks in the transportation system.	
Canada Transportation Act (SC 1996, c. 10)	Transport Canada	Advances safety in air, marine, pipeline, and rail transportation in Canada.	
Railway Safety Act (RSC, 1985, c.32)	Government of Canada	Promotes and provides safety and security of the public and personnel, and the protection of property and the environment in railway operations.	
Transportation of Dangerous Goods Act, 1992	Government of Canada	Promotes public safety when dangerous goods are being handled, offered for transport, or transported by road, rail, air, or water.	
Canadian Environmental Quality Guidelines (CEQGs)	Canadian Council of Ministers of the Environment	Values (concentrations) for soil, water, sediment, and other media quality that are developed as guidelines for use across Canada.	Can be applied for soil and water analyses results comparison.

Legislation or Guidance	Governing Agency	Description	Project Applicability
Federal Environmental Quality Guidelines (FEQGs)	Government of Canada	Recommended chemical thresholds to support federal initiatives.	
Provincial Water Quality Objectives, 1994	MECP	Provide satisfactory chemical and physical indicators for surface waters.	

Appendix C
Excess Soil Reuse Planning

The following sections outline the approach to Soil Reuse Planning, including the requirements for the Assessment of Past Uses (APU), the Sampling and Analysis Plan (SAP), as well as the evaluation of the results generated. Explanations of the Soil Characterization Report (SCR), Excess Soil Destination Assessment Report (ESDAR), and Tracking System for soil reuse are also included.

C.1 Assessment of Past Uses

As per the Soil Rules [5], the objective an APU is the following:

- To develop a preliminary determination of the likelihood that one or more contaminants have affected soil or rock in a location where soil or crushed rock is to be excavated within the project area.
- To identify any areas of potential environmental concern (APECs) within the project area and to determine if any location where soil or crushed rock is to be excavated could have been affected by a potentially contaminating activity (PCA).
- To identify the contaminants of potential concern (COPCs) to determine the focus of the sampling and analysis plan, if any APECs are identified.
- The exact requirements of an APU are defined in Subsection 1 of Part B of the Soil Rules; however, in general, an APU is similar in scope to a Phase One ESA completed in accordance with O. Reg. 153/04. Subsection 1(10)(1) of Section B of the Soil Rules permits the use of an existing Phase One ESA report to satisfy the requirement for an APU, subject to the following conditions as outlined in the Soil Rules [5]:
- The date the last work was done on all of the records review, interviews and site reconnaissance required for the assessment of past uses that is the subject of the report is no later than 18 months before the filing a notice in the Registry for the project or the commencement of work on the development of an SAP.
- In the professional opinion of the qualified person, there is no new or materially changed area of potential environmental concern at the project area that has arisen since the date of the last work for the APU that is the subject of the report.
- The APU meets the requirements for an assessment of past uses report.
- The report is a single document; and
- The report is the most recent document that meets these requirements for the project area.

An update to the Phase One ESA will be required to satisfy the APU requirement. The update to the Phase One ESA must be completed in advance of the development and execution of an SAP. For this Project, an APU or Phase One ESA needs to be prepared. This will need to be completed in advance of the development and execution of an SAP. This will ensure that future environmental investigations at the site adequately address

identified areas of potential environmental concern that fall within the proposed excavation footprint.

C.2 Sampling and Analysis Plan

An SAP will be prepared to investigate identified APECs that fall within the proposed excavation footprint. As per the Soil Rules, the objective of an SAP is the following:

- Identify each location where soil or crushed rock is to be excavated that will be subject to sampling and analysis, including APECs identified through the APU.
- Ensure an appropriate level of sampling and analysis is carried out to determine the concentration of contaminants in the excavated soil or crushed rock to identify:
  - which soil or crushed rock may be reused within the Project Area, with or without processing at the Project Area, and which excess soil may be deposited at a Class 1 soil management site or at a landfill or dump; and
  - the potential reuse sites at which excess soil from the Project Area may be deposited for final placement, having regard to the excess soil quality standards (ESQS) set out in this document.

In summary, the SAP establishes the sampling requirements for the Project Area to characterize the environmental quality of the surplus soil generated, based on APECs, and associated COPCs identified in the APU, and minimum sampling requirements, as described in the Soil Rules. The SAP will document areas for investigation, with details regarding:

- Estimated volume of excess soil generated.
- Parameters will be used to characterize the excess soil quality.
- Number of in-situ and stockpile (ex-situ) bulk and leachate samples to adequately characterize the excess soil; and
- Completing the designed investigation.

Upon completion of SAP development, the SAP will be executed via intrusive field investigation. The sections below outline the characterization methods, as well as the sampling, transportation, analysis, and evaluation requirements. In accordance with the Soil Rules, where contamination is discovered during the execution of the SAP, reasonable efforts to delineate the contamination within the footprint of the excavation up to the depth of investigation will be completed.

C.2.1 Investigation Methods

Due to the nature and schedule of the Project, it is anticipated that both in-situ and ex-situ sampling methods may be required to characterize the soils and materials to be excavated as part of the Project.

C.2.2 In-Situ Sampling

In-situ sampling will be prioritized and will be based on the Project design cut-fill soil analysis. In-situ sampling methods reduce the regulatory requirements for minimum sampling, are best collected prior to the start of construction, and are expected to provide a more accurate representation of the subsurface conditions due to the undisturbed nature of the soil. Methods to facilitate in-situ soil characterization may include use of a conventional drill rigs with split spoon samplers, direct push continuous sampler drill rigs, excavators, and/or hand augers (as needed). When conducting in-situ sampling, site personnel will collect soil samples at the frequency specified in Table which is consistent with the Soil Rules.

Table C - 1: In-Situ Soil Sampling Frequencies

Estimated Volume of Soil to be Excavated and Managed as Excess Soil	Minimum Number of Samples	Cumulative Number of Samples
< 600 m^3	Minimum 3	3
> 600 – 10,000 m^3	1 sample per 200 m^3	4 to 50
> 10,000 – 40,000 m^3	1 sample per 450 m^3	51 to 117
> 40,000 m^3	1 sample per 2,000 m^3	118+

C.2.3 Ex-Situ and Stockpile Sampling

Where the required sampling frequencies and/or delineation sampling requirements cannot be achieved through in-situ sampling activities, soil samples will be collected using ex-situ methods during excavation of the subsurface soil and materials. Ex-situ sampling may also be conducted to confirm previous in-situ sampling results or for quality assurance purposes. Unsampled soil and excavated materials will be segregated into various stockpiles for further characterization testing to determine classification for reuse and/or disposal.

Stockpile sampling must be conducted in accordance with the following methods, as outlined in the Soil Rules:

- A sufficient number of samples shall be collected at different depths within a stockpile to characterize the depth profile and the spatial variation, laterally and vertically, of the COPC within the stockpile.
- Soil samples shall not be collected from the surface of the stockpile; rather, techniques and equipment need to allow for collection of samples from the entire stockpile, including the core.
- Unless Section 17 applies (stormwater management pond sediment), the sampling frequencies specified in Table 2 of Schedule E to O. Reg. 153/04, Minimum Stockpile Sampling Frequency shall be followed.

When conducting ex-situ sampling, soil samples must be collected at the frequency specified in Table below which is consistent with Table 2: Minimum Stockpile Sampling Frequency outlined in O. Reg. 153/04.

Table C - 2: Stockpile Soil Sampling Frequencies

Estimated Volume of Soil to be Excavated and Managed as Excess Soil (m^3)	Minimum Number of Samples
< 130	3
> 130 – 220	4
> 220 – 320	5
>320 – 430	6
> 430 – 550	7
>550 – 670	8
> 670 – 800	9
> 800 – 2,500	10 – 20
> 2,500 – 4,700	21 – 31
> 4,700 – 5,000	32
>5,000	N = 32 + (V-5,000) ÷ 300

N = the minimum number of samples
V = the stockpile volume in cubic metres

C.2.4 Sample Screening

Soil samples that are collected during the investigation will be screened in the field for evidence of contamination. The soil sample will be visually observed for cues that contamination may be present. Visual evidence of contamination may include unusual staining, presence of free phase product, or a rainbow-like colour/sheen. Next, the sample will be bagged for digital measurement, and the presence of odours will be noted and documented. Finally, a gas monitor will be inserted into the bagged sample to measure the concentration of combustible vapours, ionizable vapours and/or organic vapours. The meter(s) will be calibrated at the beginning of each workday and records of calibration will be maintained.

C.2.5 Sample Selection and Transportation

Samples selected for submission to the analytical laboratory will be based on the SAP, field screening results and the depth of excavation required in the investigated areas. Field staff responsible for collection of the samples will coordinate with the Project QP to select the appropriate samples for submission. Samples that could not be collected in accordance with the SAP due to unforeseen circumstances during the investigation activities, will be documented and the QP will determine if any further sampling is required to satisfy planning requirements. Selected samples will be stored in a cooler at a temperature less than 10°C and transported to the laboratory under standard chain-of-custody (COC) procedure.

The soil samples delivered to the analytical laboratory will be tested and analyzed in accordance with the MECP's Protocol for Analytical Methods used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality, February 2021 (the "Analytical Protocol"). The Analytical Protocol sets out the sample handling and storage requirements, analytical methods and method specific quality control and assurance procedures for laboratories established by recognized organizations. Samples will be analyzed on a regular turnaround time (typically 5 to 7 business days). Where required, the samples may be analyzed on a faster turnaround time. This will be assessed by the QP at the time of submission.

In order to confirm that the laboratory's analysis is reproducible, blind split duplicate samples will be submitted for analysis. The QP will establish the frequency of sample collection for duplicate analysis as part of SAP development.

C.2.6 Analytical Testing

Bulk soil samples will be submitted to an analytical laboratory that is certified by the Canadian Association for Laboratory Accreditation (CALA) and/or the Standards Council of Canada (SCC). The bulk samples will be analyzed in accordance with the Analytical Protocol. A list of COPCs related to each excavation area within the Project Area will be developed, and further detailed in the SAP. Parameter groups, as defined in the Analytical Protocol, which may include COPCs for this Project, are listed below.

- Organic Parameter Groups
  - Acid Base Neutrals (ABNs)
  - Benzene, Toluene, Ethylbenzene and Xylene (BTEX)
  - Chlorophenols (CPs)
  - 1-4 – Dioxane
  - Dioxins and Furans
  - Organochlorine Pesticides (OCPs)
  - Petroleum Hydrocarbons (PHCs)
  - Polychlorinated Biphenyls (PCBs)
  - Polycyclic Aromatic Hydrocarbons (PAHs)
  - Trihalomethanes (THMs)
  - Volatile Organic Compounds (VOCs)
- Inorganic Parameter Groups
  - Calcium and Magnesium

- Metals
- Hydride Forming Metals
- Sodium

- Other Regulated Parameters:
  - Hot water soluble (HWS) Boron, Chloride, Cyanide, Electrical Conductivity (EC), Fraction of Organic Carbon (FOC), Hexavalent Chromium, Nitrate, Nitrite, Nitrogen (total), Mercury, Methyl Mercury, Particle size, pH, and/or Sodium Adsorption Ratio (SAR).

The exact COPCs for the Project Area will be determined during the completion of the Phase One ESA/APU, as described in Section C.1.

In addition to collection and submission of bulk samples for chemical analysis, O. Reg. 406/19 and the Soil Rules necessitate the collection and analysis of soil samples for leachate potential due to rainwater. Leachate testing completed for the purpose of satisfying O. Reg. 406/19 requirements will be completed using the ministry Synthetic Precipitate Leaching Procedure (mSPLP) at the following frequency, as specified in the Soil Rules:

- A minimum of three samples must be submitted for leachate analysis if less than 600 cubic metres of soil or crushed rock will be excavated.
- The samples submitted for leachate analysis shall be collected from the sampling locations where 90% (or higher) of the highest contaminant concentrations were found.
- Leachate analysis should be completed on at least 10% of the soil samples, in addition to the three minimum samples, unless the qualified person can provide a rationale regarding why leachate analysis is not necessary in order to meet the general and specific objectives of the excess soil characterization.

Parameter groups that may be tested for leachate testing include mSPLP metals, mSPLP VOCs, mSPLP OCPs, and/or SPLP ABNs. The exact mSPLP COPCs will be detailed in the SAP.

For waste management purposes, leachate testing will be conducted via the toxicity characteristic leaching procedure (TCLP) using US EPA SW-846 Method 1311 (or equivalent when necessary). Samples for analysis of TCLP parameters are generally collected at a rate of 10% of the bulk sampling frequency. Parameter groups that may be analyzed for waste management purposes include TCLP ignitability, TCLP PCBs, TCLP metals and inorganics and TCLP VOCs.

In the case of both mSPLP and TCLP testing, the sampling requirements will be documented during the development of the SAP.

C.3 Evaluation of Sampling Results

C.3.1 Applicable Standards

Selection of an applicable standard for evaluation of soil quality is dependent on a number of factors, including whether soil will be reused at an on-site or off-site location, existing and/or proposed land uses of the reuse area, groundwater conditions including depth and potability, depth to bedrock, stratified conditions, presence of environmentally sensitive areas, and proximity to water bodies. Where soil is to be reused within the Project Area, an appropriate Site Condition Standard (SCS) will be selected to evaluate reuse potential. Based on analytical laboratory results, soil that does not meet the applicable SCS for the Project Area will not be considered for reuse within the Project Area (unless an approved risk-based approach is applied). In addition, should the chemical quality of soil satisfy the applicable SCS for the Project Area, consideration will still need to be given to the geotechnical quality of the material to ensure that it meets the geotechnical requirements of the proposed use. Soil mixing/blending completed in accordance with O. Reg 406/19, the Soil Rules and other applicable legislative requirements, may be conducted at the discretion of the QP to confirm it can meet both environmental and geotechnical standards. Confirmation of geotechnical quality is beyond the scope of this document.

Where soil is to be reused at an off-site location, an applicable Excess Soil Quality Standard (ESQS), and Leachate Screening Level (LSL), as dictated by the receiving site QP and/or fill management plan, will be selected for comparison.

If no reuse options are determined for the material, it may require disposal at a landfill or an approved waste disposal facility. The result of TCLP testing will be compared to the O. Reg. 347 Schedule 4 Leachate Criteria. Soil will be considered hazardous if the results of TCLP analysis do not satisfy the Schedule 4 Criteria and will be required to be registered.

C.3.2 Measurement Methods

The Single-Point Compliance Method (SPCM), as described in the Soil Rules, will be used to assess whether applicable standards are met. According to the SPCM, a standard is considered met when the following requirements are satisfied:

- The applicable excess soil quality standard is met at each sampling point from which a sample is taken for soil analysis.
- If two or more in situ samples of soil are taken from sampling points at the same sampling location, as defined in subsection 48 (4) of O. Reg. 153/04, that are at the same depth, the excess soil quality standard is deemed to be met if the average of these sampling results is less than or equal to the applicable excess soil quality standard; and
- The averaging provision set out immediately above does not allow for compositing of samples of soil that will be analyzed for volatile contaminants, including VOCs.

Where compliance with the applicable standard is not achieved using SPCM, the Statistical Method, as described in the Soil Rules, may be used. The Statistical Method may be used where the following requirements are met:

- The 90th percentile of the data set (90% of the samples) must be less than or equal to the applicable excess soil quality standard.
- The upper 95% confidence limit of the mean concentration of the samples must be less than or equal to the applicable excess soil quality standard.
- No single sample within the data set exceeds the corresponding ceiling value for that contaminant. Ceiling values are specified below:
  - For an excess soil quality standard provided in Appendix 1 of the Soil Rules document, the ceiling value is provided in the correspondingly numbered table of ceiling values provided in Appendix 3 of the Soil Rules document.
- This statistical method can only be relied upon in determining if an excess soil quality standard is met when a minimum of twenty (20) discrete soil samples have been collected for soil analysis. The samples must come from soil within an APEC or soil that has similar soil characteristics and that is interpreted to be impacted by a similar process.
- The statistical compliance approach cannot be used in respect of pH levels in excess soil being analyzed as required by subsection 1 (4) of Section D of PART I of the Soil Rules document.
- An individual who undertakes an assessment of soil results utilizing the statistical compliance approach must be familiar with statistical methods and/or consult with someone having this expertise to evaluate the sampling results.

C.4 Soil Characterization Report

The SCR will document the results obtained through execution of the SAP. The exact requirements of the SCR are documented in Subsection 3 (1) of Section B the Soil Rules. In general, the SCR will

- Provide a description of the investigation methods.
- Document observed physical conditions of the Project Area including stratigraphy, depth to bedrock (if encountered) and depth to water table.
- Summary of borehole and sampling plan that was executed including number, location and depth of samples for each APEC investigated.
- A review and evaluation of soil quality in the form of text, tables, and figures; and
- A summary of how each area of excavation should be dispositioned.

C.5 Excess Soil Destination Assessment Report

Prior to the disposition of soil from the Project Area, options for disposition will be considered based on the soil quality documented in the SCR. Potential disposition options include:

- Reuse of excess soil for beneficial purposes at a construction or development site.
- Reuse of excess soil at a commercial site where soil is purchased.
- Disposal of excess soil at a landfill for the purpose of daily cover (subsequent to January 1, 2027).
- Disposal of soil excess soil at an approved Class 1 Soil Management Site (as defined in O. Reg. 406/19.) for recycling, processing, and/or treatment.

Reuse of soil will be prioritized over the other disposition methods. Where reuse of excess soil is not feasible, the soil will be sent for disposal at a landfill or a licensed soil receiving facility.

Where soil will be dispositioned to a reuse site, the QP will determine whether the transfer of soil has the potential to cause an adverse effect on the receiving site. In conducting this evaluation, the QP will consider the quality of the excess soil from the Project Area and the applicable ESQS for the reuse site. The specific conditions at both sites will be analyzed to determine if the soil is appropriate to be used at the receiving site. In general, the selection of a receiving site is dependent on the following:

- Whether a reuse site, soil management facility, waste transfer facility, or waste disposal facility can accept the surplus soil based on its quality and quantity.
- Whether or not the receiving site is governed by an instrument (e.g., ECA).
- What is the intended beneficial use of the soil and/or excavated materials at the receiving site.
- Whether or not the receiving site has a QP supporting the receiving site owner/operator; and
- Whether or not the receiving site can provide written acceptance of the soil and/or excavated material.

As described in Section C.3, data from the analyzed soil samples will be compared to applicable excess soil quality standards. Appropriate receiving sites will be determined based on the soil quality results.

Once the QP confirms that a receiving site can accept the excess soil from the Project Area, an ESDAR will be prepared and distributed to the receiving site QP. The ESDAR will comply with the requirements of Subsection 4(4) of Section B of the Soil Rules. An ESDAR will be prepared for each reuse site, Class 1 Soil Management Site, Class 2 Soil Management Site, waste transfer facility, landfill, and/or dump.

C.6 Tracking System

O. Reg. 406/19 requires traceability of each load of excess soil leaving the source site, during its transportation and deposit, to limit illegal dumping and improper deposition of soil.

As such, a tracking system will be implemented by the Contractor to track each load of excess soil leaving the Project Area, including its overall quality, quantity, and verification of the ultimate location at which it was deposited in accordance with requirements of Subsection 5(1) and 5(2) of Part of B of the Soil Rules. The Contractor shall ensure that the tracking system complies with Section 5 of Part B of the Soil Rules.