

LPH SOIL REMEDIATION  
FORMER LANDFILL  
AND ASPHALT PLANT  
OTTER CREEK  
HAPPY VALLEY-GOOSE BAY  
NEWFOUNDLAND AND LABRADOR  
PROJECT NO.R.082578.001

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## 1 GENERAL

### 1.01 RELATED REQUIREMENTS

- .1 Section 02 41 16 - Selective Site Demolition.
- .2 Section 31 23 10 - Excavation, Trenching and Backfilling.
- .3 Section 01 74 11 - Cleaning.

### 1.02 SCOPE

- .1 Work Includes:
  - .1 Soil remediation via excavation to address liquid petroleum hydrocarbon (LPH) impacted soil. It is estimated there is 1,290 cubic metres (2,838 tonnes) of LPH impacted soil that requires remediation (i.e. excavation from the ground surface to 0.30 metre below the groundwater table). All LPH remediation involves excavation, removal, transportation and off site treatment of impacted soil at a provincially approved facility.
  - .2 Removal of all LPH from the groundwater table within the open remediation excavation for offsite disposal at a provincially licensed petroleum hydrocarbon water treatment facility. Contractor to assume 20,000 litres of oily water for removal and treatment for costing/bidding purposes.
  - .3 Reinstatement of excavated areas to original grade with imported clean fill material, free from any contamination. Maximum acceptable concentrations of selected chemicals are indicated in Section 31 23 10 - Excavation, Trenching and Backfilling.
  - .4 Development, provision and installation of an impermeable barrier wall along the western boundary of the remediation work during backfilling of the excavation to prevent seepage of LPH from the upgradient DND and Provincial impacted properties (Figure 2, Appendix B).
  - .5 Re-vegetation of remediation areas is not required as part of this contract.
- .2 The Contractor is to keep the LPH remediation excavation open for a minimum of 7 days after notification that all measureable LPH has been removed to allow the Departmental Representative to periodically inspect the excavation and determine the presence/absence of LPH seeping from the excavation sidewalls and interior.
  - .1 If within or after the 7-day inspection period, the Departmental Representative believes that further delineation of LPH impacts is required, the Contractor may be requested to excavate test pits around the specified LPH perimeter. The requirement for test pits will be outside the original scope of work and will be addressed accordingly by change order.
  - .2 Confirmatory soil samples are not required from the sidewalls of the remediation excavation.
  - .3 Backfilling cannot commence until clearance is provided by the Departmental Representative.

- .4 Given that there will be LPH impacts remaining on the upgradient property, the Contractor will be required to control, contain, collect and dispose of any LPH seepage from the western boundary of the remediation excavation work, the 7 day inspection period, backfilling of the excavation and installation of the barrier wall. LPH seepage from the western boundary of the remediation will not void the 7 day inspection period.

### **1.03 REFERENCE STANDARDS**

- .1 Applicable environmental and health and safety laws and regulations for Province of Newfoundland and Labrador, and Municipal by-laws.
- .2 National Electricity Code 2002.
- .3 CCME (Canadian Council of Ministers of the Environment) Contaminated Sites, Contaminated Soil and Groundwater, and Remediation of Contaminated Sites most current publications.
- .4 National Research Council Canada (NRC)
  - .1 National Building Code of Canada 2015 (NBC).
  - .2 National Fire Code of Canada 2015 (NFC).

### **1.04 MEASUREMENT FOR PAYMENT**

- .1 Soil Remediation including excavation, removal, transportation and offsite treatment of LPH impacted soils at a provincially registered disposal facility will be measured in tonnes of soil materials processed for treatment. Weigh scale slips for all soil removed from Site for treatment are required to be submitted with progress claim.
- .2 Oily and LPH impacted groundwater including pumping and removal from the groundwater table within the open remediation excavation, transportation and treatment at a provincially licensed petroleum hydrocarbon water treatment facility will be measured in litres of oily water processed for treatment.
- .3 Design and provision, including the supply of materials and installation of impermeable barrier wall along the western boundary of the remediation excavation (refer to Figure 2, Appendix B) will be measured in metres of barrier wall constructed in place in accordance with Section 31 23 10 - Excavation, Trenching and Backfilling. The barrier wall will need to be installed during backfilling of the remediation excavation.

### **1.05 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

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- .2 Quality Assurance and Quality Control Submittals:
  - .1 Provide Quality Assurance and Quality Control Submittals in accordance with Section 01 33 00 - Submittal Procedures as follows:
    - .1 Description of emergency plans in case of breakdown, spill or other problem.
    - .2 Description of contingency plan in case of variations of critical parameters during system operation.
    - .3 Waste management plan and complete list of wastes, including waste registration numbers as required by provincial regulations that will be generated by activities.
    - .4 Detailed Project Execution Plan (PEP) of soil remediation.
    - .5 Methods that will be used to restore site to its original condition and applicable site criteria as mandated by the Province.
- .3 Closeout Submittals:
  - .1 Provide closeout submittals in accordance with Section 01 78 00 - Closeout Submittals as follows:
    - .1 Provide written proof (weigh scale tickets) that contaminated soil and oily water has been sent to disposal facility(s) authorized by Province of Newfoundland and Labrador to accept the type of material remediated with the indicated levels supplied under this contract.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- .1 Contaminated Soil:
  - .1 Excavate approximately 2,838 tonnes of contaminated soil and place in water-tight dump trucks. Transport and dispose of contaminated soil accordingly at registered disposal facilities.
  - .2 Contractor to take necessary actions to prevent loss of contaminated soil and water during transportation, including the possibility of contaminated soil from vehicle tires.
  - .3 Contractor to ensure that boxes of the dump trucks are water tight and no leakage occurs prior to or during transportation of material to a soil treatment facility. Any vehicles failing to meet these requirements will be rejected.
  - .4 Contractor will be responsible to remediate any spills or contamination that results from improper decontamination and transportation of contaminated soil and LPH, both onsite and offsite, at no cost to Canada.

**1.07 SITE CONDITIONS**

- .1 Existing Conditions:
  - .1 Review Project Support Information (PSI) (Appendix "A") summarizing scope of LPH soil contamination remediation on Site.
  - .2 Contaminated soil removal:
    - .1 Restore excavated portion with non-contaminated material.

- .2 Protect non-contaminated material from adjacent contaminated soil, before soil excavation and transportation begins.

## **1.08 SEQUENCING**

- .1 When floating free phase substance is present, remove free phase from the water table within the remediation excavations and from saturated soils without further contaminating soil or groundwater prior to commencing other decontamination work. Saturated soil to be de-watered prior to transportation offsite.
- .2 Decontaminate equipment used in decontamination procedures before removing equipment from project Site.

## **1.09 MAINTENANCE**

- .1 Access Roads:
  - .1 Maintain Access Roads in accordance with Section 01 55 26 - Traffic Control and as follows:
    - .1 Obtain permission or permit from Provincial Department of Transportation and Public Works to use existing roads to access site.
    - .2 Maintain and clean roads for duration of Work.
    - .3 Repair damage incurred from use of roads.
    - .4 Provide photographic documentation of roads used by construction vehicles before, during and after Work.

## **2 PRODUCTS**

### **2.01 MATERIALS**

- .1 Fill:
  - .1 To Section 31 23 10 - Excavation, Trenching and Backfilling and meeting decontamination objectives specified.
- .2 Contaminated/Volatile Waste:
  - .1 Excavate and truck to disposal facility, daily. See Clause 1.06.1.1.
- .3 Hazardous Waste:
  - .1 Disposed in accordance with Provincial Regulations.

### **2.02 EQUIPMENT**

- .1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.
- .2 Trucks Decontamination:
  - .1 Cleaned meticulously between loads of contaminated soil and clean fill.
  - .2 Cleaned meticulously at end of work day.
  - .3 Cover truck bodies with tarpaulins during transportation.

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- .4 No work should proceed during adverse weather conditions and heavy rain.
- .5 Use watertight truck bodies for transporting contaminated soil. All trucks to have tail gates with seals in good working order so as to prevent sludge or liquid material leaking from truck. Contractor must ensure that truck box is water tight and no leakage occurs prior to or during transportation of materials. Any vehicles failing to meet these requirements will be rejected.
- .6 All trucks will be cleaned at the waste disposal facility if not returning to site for reloading.
- .3 Environmental Emergency Response Material must be on site at all time in case of spill.
  - .1 Contractor to indicate in the environmental protection plan/emergency response plan, where the spill kit is to be stored on site.
  - .2 Onsite personnel to be trained in spill response.

## 2.03 DISPOSAL FACILITY

- .1 After Contract Award, Contractor will provide copy of the proposed waste disposal sites' Approval to Operate certificates for the LPH impacted soils and free phase product/oily water. All weigh bills/manifests must be provided to the Departmental Representative as specified. The weigh slips must be collected from a weigh scale that is certified by the Province or the manufacturer's authorized representative to have an accuracy of at least +/- 5%. Minimum age of calibration is one year.

## 3 EXECUTION

### 3.01 EXAMINATION

- .1 Site Verification of Conditions:
  - .1 Initial level of soil contamination is included in Appendix A. Quantity is estimated to be a volume of 1,290 cubic metres (2,838 tonnes). Proposed excavation covers an area of 890 square metres and extends to a depth of 0.3 metres below the groundwater table.
  - .2 Contractor to recover all LPH and oily sheen from top of groundwater table within the excavation for offsite disposal. Contractor to assume a volume of 20,000 litres for costing purposes.

### 3.02 PREPARATION

- .1 Protection:
  - .1 Contractor to manage recovered water according to contamination level and provincial/municipal regulations.
  - .2 Contractor to develop and construct an impermeable barrier wall long the

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- western boundary of the remediation work during backfilling of the excavation to prevent seepage of LPH from the upgradient DND and Provincial impacted properties.
- .3 Protect excavations from rainwater.
  - .4 Provide temporary structures to divert flow of surface waters from excavation.
  - .5 Provide safety measures to ensure worker and public safety.

### 3.03 APPLICATION

- .1 Soil Management:
  - .1 Store, transport, and eliminate off-site contaminated soil at a Registered Disposal Facility capable of accepting the type of hydrocarbon soil included in this contract.
  - .2 Do not dilute contaminated soil with less contaminated soil.

### 3.04 INSTALLATION

- .1 Install impermeable barrier wall (Figure 2, Appendix B), during backfilling of remediation excavation to prevent seepage of LPH from upgradient properties impacting current remediation work on the TC Site.
- .2 Drainage Systems:
  - .1 Do not pump water containing particles of suspended solids into waterways, sewers or drainage systems as per government regulations.

### 3.05 RESTORATION

- .1 Re-instate surface grading to give site same appearance as before remediation work.
- .2 Clean permanent access roads of contamination resulting from project activity at request of Departmental Representative.

### 3.06 FIELD QUALITY CONTROL

- .1 Remove and replace non-compliant materials.

### 3.07 EQUIPMENT DECONTAMINATION

- .1 Decontaminate equipment used in excavation, transportation process and remove from site at end of treatment activities.

**END OF SECTION**