

**Project Support Information (PSI) for LPH Remediation
Former Landfill and Asphalt Plant (TC Site), Otter Creek
Happy Valley Goose Bay, Newfoundland and Labrador**

**APPENDIX A
PROJECT SUPPORT INFORMATION**

**Project Support Information (PSI) for LPH Remediation
Former Landfill and Asphalt Plant (TC Site), Otter Creek
Happy Valley Goose Bay, Newfoundland and Labrador**

1.0 INTRODUCTION

Transport Canada (TC) has requested Public Service and Procurement Canada (PSPC) solicit a Contractor to remediate liquid petroleum hydrocarbons (LPH) via excavation and off-site disposal at the Former Landfill and Asphalt Plant (TC Site) located near Otter Creek in Happy Valley-Goose Bay, Newfoundland and Labrador (NL).

2.0 SITE DESCRIPTION

The TC Site is located on the west side of Otter Creek, west of Terrington Basin, bordering the east side of Northwest River Road (NRR) in the Town of Happy Valley-Goose Bay, NL (refer to Figure 1, Appendix B). Topography at the TC Site is generally flat and gently sloping to the east towards Otter Creek. Groundwater flow direction at the TC Site is generally to the southeast, towards Otter Creek.

Historically, the TC Site had numerous uses, including a former landfill, an asphalt plant, a bulk petroleum storage site and a possible borrow source pit for clay. The majority of the TC Site is predominantly overgrown with vegetation and contains multiple marshy/swampy low-lying areas connected to Otter Creek via a stream. In 2005, rip/rap (i.e., surge rock) was placed over a section of shoreline on the west side of Otter Creek. There is no access road leading to the area to be remediated, so access for the current project will have to be via a temporary access road from the Northwest River Highway.

3.0 BACKGROUND

Previous environmental investigations carried out at the TC Site have identified a LPH plume along the western site boundary, east of NRR (refer to Figure 2, Appendix B). The LPH plume is estimated to cover an area of approximately 860 m². Measureable LPH thickness within monitoring wells at the site, where present, ranges from 10 mm to 91 mm. It is estimated that there is 1,290 m³ (2,838 tonnes) of LPH impacted soil that requires remediation (i.e. excavation from the ground surface to 0.30 m below the groundwater table).

Soil conditions at the area of the LPH plume consist of a mixture of sand, clay, gravel, cobbles, rocks and organics. Due to historical industrial use of the property (i.e. former tank farm, asphalt plants, landfill, etc.), there is a possibility of encountering buried debris at the site. Some debris and waste materials (i.e. glass, plastic, metals, bricks, concrete, etc.) were encountered during environmental site assessment work in this area. Borehole/monitoring well logs are presented in Appendix C.

Seasonal groundwater fluid level monitoring was carried out at the TC Site during the period of December 2016 to October 2017 to gain information on the presence/absence of LPH on the groundwater table and seasonal groundwater elevations. The average depth to the groundwater table ranged from 0.567 to 1.642 meter below the ground surface (mbgs), at the wells within and in the general area of the proposed remediation excavation. LPH was detected in two monitoring wells (10-MW48-N4W0 and 15-TC-MW8) This information is presented in Table 1 below.

**Project Support Information (PSI) for LPH Remediation
Former Landfill and Asphalt Plant (TC Site), Otter Creek
Happy Valley Goose Bay, Newfoundland and Labrador**

Table 1: Seasonal Groundwater Elevation Data (mbgs)

Well Identification	December 2016 Depth to Water (mbgs)	March 2017 Depth to Water (mbgs)	July 2017 Depth to Water (mbgs)	October 2017 Depth to Water (mbgs)	Average Groundwater Depth (mbgs)	Seasonal Groundwater Fluctuation (m)
10-MW48-N4W0	0.945	1.017	0.940	0.907	0.952	0.110
TC11-MW30	1.525	1.613	1.532	1.502	1.543	0.111
16-TC-MW8	1.394	1.447	1.389	1.355	1.396	0.092
15-TC-MW9	1.128	1.206	1.120	1.102	1.139	0.104
15-TC-MW11	0.411	Frozen	0.395	0.359	0.388	0.052
17-MW53-N4W0	-	-	-	1.379	1.379	-
17-MW54-N4W0	-	-	-	1.642	1.642	-
17-MW55-N4W0	-	-	-	0.567	0.567	-

Notes:

mbgs: meters below ground surface

Bold Well ID (Well contains LPH)

The Department of National Defence (DND) initiated remediation of LPH on its property and Provincial property (right-of-way for NRR), to the west and upgradient of the TC Site in September 2018, with an anticipated completion date of September 2019. Given the LPH plume on the DND and Provincial property is located upgradient and connected to the LPH plume on the TC Site, it was initially recommended that remediation of the LPH impacts at the TC Site not be carried out until remedial actions are completed at the upgradient property. However, it is now anticipated that TC will be remediating its property before DND completes full remediation of the upgradient property. For this reason, TC will require its Contractor to construct a temporary impermeable barrier wall along the western boundary of the remediation excavation to prevent migration of any LPH from the upgradient site onto the TC Site, upon successful completion the remediation project.

The barrier wall will be installed along the adjacent Provincial property boundary (refer to Figure 2, Appendix B). For bidding purposes, the Contractor shall assume that the barrier wall will be constructed using impermeable materials (i.e. geosynthetic clay liner), polyvinyl chloride, polypropylene), measure 30 m in length, 1.90 m in height, and be installed to a depth of 1.90 m below the ground surface.

In the event that DND does complete remediation on its property before remediation is completed on the TC Site, DND's Contractor will install a barrier wall to prevent any LPH on TC Site from impacting the remediated area on the adjacent Provincial property.

Please note that trees have been removed from the area of the proposed remediation excavation at the TC Site in October 2018, and therefore, tree clearing will not be a requirement for the current work. Grubbing of tree stumps and roots will be required.

4.0 OBJECTIVES

1. Remediate 1,290 m³ (2,838 tonnes) of LPH impacted soil via excavation and off-site disposal at a licensed petroleum hydrocarbon soil treatment facility.
2. Remove all LPH from the groundwater table within the open remediation excavation for off-site disposal at a licensed petroleum hydrocarbon water treatment facility by skimming the LPH from the top of the groundwater table. For costing purposes, assume the removal and treatment of 20,000 L of oily water.

**Project Support Information (PSI) for LPH Remediation
Former Landfill and Asphalt Plant (TC Site), Otter Creek
Happy Valley Goose Bay, Newfoundland and Labrador**

3. Typically, measureable LPH is defined as the thickness of LPH that can be measured in a monitoring well using an electronic oil/water interface probe (typically $\geq 1\text{mm}$ LPH thickness). For the remedial effort under this scope of work, the LPH remediation excavation must be kept open for 7 days after the Contractor provides notification to PSPC that all measureable LPH has been removed to allow PSPC or PSPC's designate to periodically inspect the excavation and determine the presence/absence of LPH (e.g., seeping from the sidewalls). If, within or after the 7-day inspection period, PSPC believes that further delineation of LPH impacts is required, there may be a need to excavate test pits around the specified LPH excavation perimeter. Exact locations of test pits will be identified at the site by PSPC or PSPC's designate. Any requirement for test pits would be outside the original scope of work and will be addressed accordingly (by change order). This will assist in determining whether additional LPH excavation is required, and if so, where excavation is required. If additional excavation and off-site disposal of LPH impacts soil and oily water is required excavation, this will be addressed through a negotiated change order agreement with PSPC. If no LPH is visible within the remediation after 7 days, the remediation excavation will be backfilled with import clean fill material.
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 during the remediation 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 excavation will not void the 7 day inspection period.
5. Confirmatory soil samples are not required from the sidewalls of the remediation excavation.
6. Reinstate the excavated area to original grade. Contractor must account for $1,290\text{ m}^3$ of imported clean fill material, including equipment, labour, and laboratory analysis to complete this objective. Fill material used to backfill the remediation excavation must have no levels of contamination present.
7. Design, provision, and installation of an impermeable barrier wall along the western boundary of the remediation excavation to prevent seepage of LPH from the upgradient DND and Provincial properties (refer to Figure 2, Appendix B). The barrier wall will need to be installed during backfilling of the remediation excavation. Assume that the barrier wall will be 30 m in length. The Contractor will not be required to remove the barrier wall.
8. The Contractor is not required to re-vegetate the remediated areas as part of this work.

5.0 ADDITIONAL REQUIREMENTS

1. The Contractor must carry all the necessary licenses, permits, training, insurances and certifications to carry out the work.
2. The Contractor will be responsible for maintaining a safe construction area, for both workers and general public. A site-specific health and safety plan (HASP) must be issued to PSPC prior to start of the work.

**Project Support Information (PSI) for LPH Remediation
Former Landfill and Asphalt Plant (TC Site), Otter Creek
Happy Valley Goose Bay, Newfoundland and Labrador**

3. The Contractor will be responsible for the development of an Environmental Management Plan (EMP) to ensure the environmental protection of the site and surrounding environment during the work. The EMP must be received, reviewed and approved by PSPC prior to the commencement of any field work.
4. The Contractor shall be responsible for installation of erosion and sedimentation controls at the perimeter of all work areas, etc., sufficient to ensure there are no deleterious materials leaving the work areas. Control measures shall be put in place to ensure there are no impacts from their work on the immediate environment, watercourses or habitats. The Contractor must leave the site in a condition that erosion and sedimentation is not a long-term issue.
5. The Contractor must be prepared to intercept, clean up, and dispose of spills or releases that may occur whether on land or water. Maintain materials and equipment required for cleanup of spills or releases readily accessible on site.
6. Trees, shrubs, plants and aquatic environments (streams, ponds, wetlands, etc.) outside of the area to be excavated must be protected from unnecessary damage.
7. If the Contractor needs to construct temporary access to the remediation area, it must be constructed in a manner that minimizes impacts to the environment. All temporary access roads must be removed at the completion of the work, and all disturbed surfaces shall be graded to a level consistent with the surrounding environment. The locations and construction of any temporary access will be left to the discretion of the Contractor; however, the Contractor is to advise PSPC of temporary access road location prior to construction.
8. The Contractor is required to take the necessary actions to prevent loss of contaminated soil and water during transportation, as applicable, including the possibility of contaminated soil from vehicle tires. The Contractor must 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. The Contractor will be responsible to remediate any spills or contamination that results from improper decontamination and transportation of contaminated soil and LPH, both on-site and off-site, at no cost to PSPC.
9. The Contractor is required to request and obtain underground utility clearances for from the property owner (Transport Canada), Town of Happy Valley Goose Bay (i.e. water and sewer), and all applicable utility companies (NL Hydro, Aliant, Eastlink, etc.) prior to conducting intrusive work, and provide a copy of the signed-off copies to PSPC.
10. The Contractor is responsible to mark-out the remediation excavation outlined on Figure 2 (Appendix B). The survey equipment must be a minimum of +/- 1 cm accuracy. Survey data will be provided to the Contractor upon award of the work. The areas will be confirmed by PSPC or PSPC Delegate prior to the start of remediation activities.
11. It is the responsibility of the Contractor to survey the site prior to start of any remediation work and to re-survey the remediation excavation prior to and upon completion of backfilling. The survey data must be submitted to PSPC for evaluation

**Project Support Information (PSI) for LPH Remediation
Former Landfill and Asphalt Plant (TC Site), Otter Creek
Happy Valley Goose Bay, Newfoundland and Labrador**

to confirm that area has been remediated and backfill has been placed to proper grades. The survey must also include the location of the barrier wall.

12. There are five monitoring wells present within the proposed remediation excavation (10-MW8-N4W0, TC11-MW3, 15-TC-MW8, 15-TC-MW11 and 17-MW54-N4W0). These monitoring wells can be excavated, and the well materials disposed at an approved landfill. All additional monitoring well must be protected from damage (if possible). If additional monitoring wells need to be removed, the Contractor must first obtain permission from PSPC.
13. Tree removal at the site was completed in October 2018, under a separate Contract; and therefore, no cost for tree removal is to be included as part of the current work. Cost for grubbing, and disposal of the grubblings, is to be included, for no grubbing has been completed at the site. Price for any additional tree clearing requirements will be negotiated through a change order request for review and approval by PSPC, including any additional permits required (if necessary).
14. If the fill material used to backfill the remediation excavation is sourced from a supplier that can certify it as clean (i.e. no contamination present), no testing of the fill material is required, assuming proper documentation can be provided to PSPC. If the imported material is obtained from a borrow source, or a supplier that cannot certify the material as clean, it must be sampled for benzene, toluene, ethylbenzene, xylene (BTEX), total petroleum hydrocarbons (TPH), metals, polycyclic aromatic hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs) at a frequency of one sample per 250 m³.
15. There is a wetland area consisting of standing water and bog/marsh at the southwest corner of the area to be remediated that measures approximately 100 m². It is recommended that the areas of standing water be re-instated during the backfilling of the remediation excavation. In addition, organic material (i.e. peat, moss, etc.) must be added to the top 0.3 m of the soil horizon at this area to promote re-establishment of native vegetation. This organic material may be able to be sourced on-site during excavation of top 0 to 0.5 m of soil, as long as there are not visual or olfactory evidence of petroleum hydrocarbon impacts. If not, it must be sourced off-site.
16. The Contractor is responsible to ensure that any liquid product storage tanks are in compliance with the federal Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations. PSPC shall be provided with all associated documentation. All cost associated with such permits, approvals and licences shall be borne by the Contractor and included in the Contract Price.
17. All fuelling and servicing of all equipment and machinery is prohibited within 30 metres of environmentally sensitive areas, including wetlands and watercourses.
18. The Contractor shall not undertake any correspondence/contact with regulating authorities (e.g. Environment and Climate Change Canada, Canadian Coast Guard, and Provincial Departments), the public, other agencies, contractors, consultants or the media. All requests for information must be directed to the PSPC coordinator only.

It is recommended that the Contractor complete a site visit during preparation of its proposal and cost estimate to familiarize themselves with the site and to ensure they account for any site-specific requirements such as site access (i.e. access routes, temporary access road

**Project Support Information (PSI) for LPH Remediation
Former Landfill and Asphalt Plant (TC Site), Otter Creek
Happy Valley Goose Bay, Newfoundland and Labrador**

requirements, traffic control requirements), physical features (i.e. any additional tree clearing requirements, boggy areas, areas of standing water, locations for sediment and erosion controls), etc.