



**Public Works and Government
Services Canada**

Requisition No.: EZ897-172566

Buy and Sell ID No.: _____


Specifications for

Port Hardy Airport - Soil Remediation


3475 Byng Road, Port Hardy, BC

Project No. R.078377-002 December 2016

APPROVED BY:




Regional Manager ES 2016-12-28
Date



Construction Safety Coordinator 2016-12-23
Date

TENDER:



Project Manager 2016-12-29
Date

Real Property Services Branch, Professional and Technical Services, Pacific Region
#219 - 800 Burrard Street, Vancouver, B.C. V6Z 0B9



Division No.	Division Title
01 11 00	Summary of Work
01 11 55	General Instructions
01 31 19	Project Meetings
01 32 16.07	Construction Progress
01 33 00	Submittal Procedures
01 35 00.06	Special Procedures for Traffic Control
01 35 13.43	Special Project Procedures for Contaminated Sites
01 35 29.14	Health and Safety for Contaminated Sites
01 35 43	Environmental Procedures
01 41 00	Regulatory Requirements
01 45 00	Quality Control
01 51 00	Construction Facilities
01 61 10	Product Requirements
01 71 00	Examination and Preparation
01 74 19	Waste Management and Disposal
01 78 00	Closeout Submittals
02 61 00.02	Soil Remediation General Construction
31 23 33.01	Excavating, Trenching and Backfilling

Drawing No.	Drawing Title
1	Site Location
2	Site Plan Showing Testpits, Infrastructure and Restrictions
3	Soil Analytical Results
4	Contaminated Material Lateral Extents
5	Cross Sections

Appendix No.	Appendix Title
A	Site Photographs
B	Test Pit Logs
C	Unit Price Table



1. PART 1 - GENERAL

1.1. Introduction

This specification is for the remediation of soils impacted by petroleum hydrocarbons (PHCs) within the overflow parking area at Transport Canada's (TC's) Port Hardy Airport, located at 3475 Byng Road, Port Hardy, BC (Drawing 1).

1.2. Background

A geotechnical investigation of subgrade materials was conducted in the overflow parking area in May 2016 in support of the construction of a new terminal building. A "strong hydrocarbon odour" was encountered at test pit TP16-02 during these activities. A Ground Penetrating Radar (GPR) scan conducted in the area of TP16-02 identified an "anomaly", which at the time was interpreted to be an underground storage tank (UST).

SLR Consulting (Canada) Ltd. was retained in August 2016 to remove and further investigate potential environmental liabilities associated with the suspected UST. An excavation dug in August 2016 determined that buried logs/timbers were present in the location where the UST was suspected.

Confirmatory soil samples were collected from the lateral and vertical limits of the excavation (Drawings 2, 3, 4 and 5). Four "step-out" test pit were dug to the north, west, east and south of the excavation and soil samples were collected to further characterize soil quality.

Chemical analysis performed by Maxxam Analytics identified petroleum hydrocarbon fraction F2 (PHC F2) within soil samples collected at depths between 1.2 and 1.6 m along the east and south walls of the excavation and test-pit TP-W at concentrations greater than the CCME Canada-Wide Standards for Commercial Coarse and Fine-grained subsoils. The PHC F2 impacts ranged between 290 mg/kg (TP-W) and 2,000 mg/kg (EW-2) (Drawing 3). No PHC F2 impacts were identified in the soils collected from 0.15 to 0.6 m.

1.3. Estimated Excavation Area and Volumes

Based on the data collected to date it has been assumed that the PHC F2 impacts cover an approximate area of 126 m² (Drawing 4), will be encountered within the sand and gravel fill materials from 0.5 to 1.6 m, and will not be present at concentrations greater than the applied CCME Canada-Wide Standards above or below these depths (Drawing 5).

It is also assumed that the fill material (63 m³) between surface elevation and 0.5 will be excavated, temporarily stockpiled on and covered by a poly liner on-site, and eventually utilized as backfill. The Departmental Representative will provide confirmation regarding the use of this material once confirmatory analytical results have been received.

Approximately 140 m³ of PHC impacted soils will be excavated, transported off-site and disposed of within a permitted waste disposal facility.

1.4. Backfill Requirements

The excavation is to be backfilled in uniform layers not exceeding 300 mm compacted thickness using a combination of clean Owner Supplied and Imported Backfill material.

The backfill material is to be machine compacted to 100 % standard proctor dry density to ensure no long-term settlement and the area is once again suitable for long-term parking use. The backfill material should have maximum fines content (silt and clay) of 5%.

Owner Supplied Backfill is exempt from meeting the compaction requirements, but it cannot be claimed for substandard compaction of the overlying Import Backfill. Owner Supplied Backfill must not be placed within 300 mm of the surface.

1.5. Measurement Procedures

- 1.5.1. Pre-mobilization Submittals will be paid in accordance with lump sum price established for all Preconstruction Meetings, planning, health and safety, and other Submittals in accordance with the Contract or required and accepted by the Departmental Representative as in accordance with the Contract prior to mobilization to Site.
- 1.5.2. Mobilization will be paid in accordance with lump sum price established for mobilizing all necessary equipment, materials, supplies, facilities, and personnel associated with the Works to the Site. Includes initial insurance, bonding, and permits. Additional insurance, bonding, and permits due to changes in scope, cost, and schedule as accepted by the Departmental Representative will be included in Contract amendments.
- 1.5.3. Site Preparation will be paid in accordance with lump sum price established to prepare the Site for planned construction works. Includes utility location and protection, and removal of any incidental or generated material. Also includes Preconstruction Precondition Survey Documents.
- 1.5.4. Site Facilities Provision will be paid in accordance with lump sum price established to design, temporarily provide for duration of Work, and erect all infrastructure in accordance with the Contract. Includes temporary structures and facilities, temporary hoarding, security fencing, federal signage, and sanitary facilities, and stormwater management infrastructure.
- 1.5.5. Site Facilities Operation will be paid in accordance with unit rate price established for time to operate and maintain all infrastructure between mobilization and demobilization. Measurement as recorded time by Departmental Representative. Includes temporary structures and facilities including temporary hoarding, security fencing, federal signage, sanitary facilities, and stormwater management infrastructure. Also includes ongoing services including project management, security, surveying, noise monitoring, vibration monitoring, utilities, project meetings, inspections, progress Submittals, traffic control, health and safety, Environmental Protection and

SUMMARY OF WORK

- cleaning. Also, includes living out allowances, travel and room and board. Rate must not vary even if hours of work and/or days of work vary. Time will only be paid for duration in accordance with the Contract and changes in schedule as accepted by the Departmental Representative and included in Extension of Time on Contracts.
- 1.5.6. Standby Time will be paid in accordance with unit rate price established, for time when construction Work is unable to proceed, and that is directly attributable to any neglect or delay that occurs after the date of the Contract on the part of the Departmental Representative in providing any information or in doing any act that the Contract expressly requires the Departmental Representative. Measurement as recorded time by Departmental Representative. Includes machinery and labour standby costs. Does not include items covered by Site Facilities Operation. Standby Time may be pro-rated based on hours of work. Make all efforts to minimize impacts due to delays caused by the Departmental Representative, including re-sequencing Work. Provide documentation of a sufficient description of the facts and circumstances of the occurrence to enable the Departmental Representative to determine whether or not the Standby Time is justified. Reviews, sampling, or other work conducted by the Departmental Representative with time allowances in accordance with the Contract will result in no increase to the Contract Amount nor Extension of Time for completion of the Work.
- 1.5.7. Contaminated Water Treatment Plant Provision will be paid in accordance with lump sum price established to design, temporarily provide for duration of Work, and erect Contaminated Water Treatment Plant. Includes all ancillary tanks, storage containers, equipment and piping.
- 1.5.8. Contaminated Water Treatment Plant Operation will be paid in accordance with unit rate price established for volume of water to collect, store, treat, sample and discharge contaminated or potentially Contaminated Water.
- 1.5.9. Excavation will be paid in accordance with unit rate price established for volume of material removed to excavate material to extents shown on Drawings. Measurement as recorded volume of excavation limits as surveyed by Departmental Representative. Includes temporary support and stockpiling onsite. Does not include offsite transportation.
- 1.5.10. Waste Oversize Debris Removal will be paid in accordance with unit rate price established for time to remove oversize material from excavation. Measurement as recorded time by Departmental Representative. Does not include Transport or Disposal.
- 1.5.11. Backfill-Import will be paid in accordance with unit rate price established per weight for backfill material imported. Measurement as recorded on backfill source weigh scale certified by Measurement Canada receipts and results provided to Departmental Representative. Includes provision, transport to Site, onsite transport, placing, grading and compacting.
- 1.5.12. Backfill-Owner Supplied will be paid in accordance with unit rate price established per volume for backfill material supplied by PWGSC. Measurement as recorded volume of excavation limits as surveyed by Departmental Representative. Measurement as recorded volume of excavation backfilled as



SUMMARY OF WORK

- surveyed by Departmental Representative. Includes onsite transport, placing, grading and compacting.
- 1.5.13. Contaminated Material Transport-Offsite will be paid in accordance with unit rate price established for weight of material transported. Measurement as recorded on Disposal Facility weigh scale certified by Measurement Canada and results provided to Departmental Representative. Includes loading, hauling, interim storage, and handling for all material transported from Site.
- 1.5.14. Contaminated Material Disposal will be paid in accordance with unit rate price established for weight of material disposed. Measurement as recorded on Disposal Facility weigh scale certified by Measurement Canada and results provided to Departmental Representative on Certificates of Disposal. Contaminated Material Disposal includes Contaminated Material Treatment-Offsite, as required by Disposal Facility.
- 1.5.15. Site Restoration will be paid in accordance with the lump sum price established to restore the Site to pre-Work use as shown on Drawings. Includes re-establishment of pre-existing infrastructure and deconstructing and removal from Site all temporary facilities and removal of any incidental or generated material.
- 1.5.16. Demobilization will be paid in accordance with lump sum price established for demobilizing all equipment and personnel associated with the Works from the Site. Includes decontaminating all equipment prior to removal from Site.
- 1.5.17. Closeout Submittals will be paid in accordance with lump sum price established for Final Site Inspection (for Certificate of Completion purposes), Closeout Meetings, provision of final as-built documents and completion documents as instructed by the Departmental Representative.

1.6. Definitions

- 1.6.1. Certificate of Completion: see General Conditions.
- 1.6.2. Change Order: PWGSC form issued by the Departmental Representative to the Contractor as per the relevant Contemplated Change Notice.
- 1.6.3. Confirmation Samples: soil and sediment samples collected from the base and walls of the excavation by the Departmental Representative to confirm that the remedial objectives for the Work have been met.
- 1.6.4. Contaminated Material: soil and other material where substances occur at concentrations that: (i) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment, or (ii) exceed the levels specified in policies and regulations. Includes Hazardous Waste and Waste Quality; does not include Non-Contaminated Material or Waste. Relevant regulations, unless otherwise in accordance with the Contract or as instructed by the Departmental Representative, include:
- 1.6.4.1. For all sites: Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* and CCME *Canada-Wide Standards*.

SUMMARY OF WORK

- 1.6.4.2. For sites in BC: BC *Hazardous Waste Regulations*, BC *Approved Water Quality Guidelines*, BC *Contaminated Sites Regulation*.
- 1.6.5. Contaminated Water: liquid material where substances occur at concentrations that: (i) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment, or (ii) meet or exceed the levels specified in policies and regulations. Includes Hazardous Waste and Waste Quality Water; does not include Non-Contaminated Water or Sewage Wastewater. Relevant regulations, unless otherwise in accordance with the Contract or as instructed by the Departmental Representative, include:
- 1.6.5.1. For all sites: Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* and CCME *Canada-Wide Standards*.
- 1.6.5.2. For sites in BC: BC *Hazardous Waste Regulations*, BC *Approved Water Quality Guidelines*.
- 1.6.6. Contaminated Water Treatment Plant: a temporary onsite or existing offsite facility located in Canada that is designed, constructed and operated for the handling or processing of Contaminated Water in such a manner as to change the physical, chemical or biological character or composition of the water to lower than the site-specific remedial objective, Discharge Approval, and in compliance with all regulations.
- 1.6.7. Contemplated Change Notice: PWGSC form issued by the Departmental Representative to the Contractor requesting Contractor to provide a quote, which may result in a Change Order.
- 1.6.8. Contract: see General Conditions.
- 1.6.9. Contract Amount: see General Conditions.
- 1.6.10. Contractor: see General Conditions.
- 1.6.11. Departmental Representative: see General Conditions.
- 1.6.12. Discharge Approval: permit, certificate, approval, or any other form of authorization issued by appropriate federal agency, province, territory, or municipality having jurisdiction and authorizing offsite discharge.
- 1.6.13. Disposal Facility: a facility specifically used to introduce waste into the environment for the purpose of final burial.
- 1.6.14. Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- 1.6.15. Environmental Protection: prevention, control, mitigation, and restoration of pollution and habitat or environmental disruption during construction. Control of Environmental Pollution and Damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; vibrations; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

SUMMARY OF WORK

- 1.6.16. Environmental Protection Plan: plan developed by the Contractor to ensure Environmental Protection and prevent Environmental Pollution and Damage identifying all environmental risks and mitigation measures, including: personnel requirements, emergency contacts, Environmental Protection methods, procedures, and equipment, and emergency response including a Spill Control Plan.
- 1.6.17. Extension of Time: see General Conditions.
- 1.6.18. Extension of Time on Contracts: PWGSC form requesting an Extension of Time.
- 1.6.19. Final Completion: see General Conditions.
- 1.6.20. Hazardous Waste: Contaminated Material which meets the regulatory definition of Hazardous Waste.
- 1.6.21. Land Surveyor: a person working for the Contractor who is a qualified, registered land surveyor licensed to practice in relevant jurisdiction.
- 1.6.22. Landfill: an existing offsite facility located in Canada that is designed, constructed and operated to prevent any pollution from being caused by the facility outside the area of the facility from waste placed in or on land within the facility.
- 1.6.23. Materials Source Separation Program: consists of a series of ongoing activities to separate reusable and recyclable waste into categories from other types of waste at point of generation.
- 1.6.24. Non-Contaminated Material: soil and other material which meets the *Canadian Council of Ministers of the Environment (CCME), Canadian Environmental Quality Guidelines*.
- 1.6.25. Non-Contaminated Water: liquids which are suitable for direct discharge to the environment after removal of sediment, and which is not Contaminated Water or Sewage Wastewater. Includes surface runoff, stormwater, and groundwater which has not come into contact with Contaminated Material.
- 1.6.26. On Site Instruction: instructions or other communications issued by the Departmental Representative to the Contractor.
- 1.6.27. On Site Notice: notice or other communication issued by the Contractor to the Departmental Representative.
- 1.6.28. Overburden: Non-Contaminated Material excavated incidentally that is not Topsoil.
- 1.6.29. Progress Payment: see General Conditions.
- 1.6.30. PWGSC: Public Works and Government Services Canada. Representative of Canada with control of the Site.
- 1.6.31. Qualified Professional: a person working for the Contractor who is registered in relevant jurisdiction with his or her appropriate professional association, acts under that professional association's code of ethics, and is subject to disciplinary action by that professional association, and through suitable education, experience, accreditation and knowledge can be reasonably relied on to provide advice within his or her area of expertise.



SUMMARY OF WORK

- 1.6.32. Quote: Contractor's cost estimate issued to the Departmental Representative as per the relevant Contemplated Change Notice via an On Site Notice.
- 1.6.33. Remediation by Excavation: complete excavation of Contaminated Material and incidental Non-Contaminated Material to the Site boundaries for the purpose of remediating the Site to meet numerical standards. Includes full treatment and disposal. Does not include risk assessment or risk management of material onsite. Does not include encapsulation or solidification in place.
- 1.6.34. Sewage Wastewater: liquid waste which is not suitable for direct discharge to the environment, and which must be either treated offsite or discharged to a sanitary sewer. Includes water from hand basin, shower, personal hygiene facilities, or other liquid waste from sanitary facilities.
- 1.6.35. Site: area shown on Drawings.
- 1.6.36. Subcontractor: see General Conditions.
- 1.6.37. Submit/Submittals: documents from the Contractor to the Departmental Representative as: required by Contract; stipulated in permit, certificate, approval, or any other form of authorization; by convention or industry practice. Submittals are final only after review and accepted in writing by Departmental Representative.
- 1.6.38. Substantial Performance: see General Conditions.
- 1.6.39. Superintendent: see General Conditions
- 1.6.40. Supplier: see General Conditions.
- 1.6.41. Topsoil: non-contaminated soil excavated incidentally that is a surface organic layer to facilitate vegetation growth.
- 1.6.42. Treatment Facility: a facility specifically used to treat Contaminated Material. May be Onsite (PWGSC provided) or Offsite (Contractor provided).
- 1.6.43. Waste: Non-Contaminated Material that is not soil. Includes cleared and grubbed vegetation, litter, rubbish, debris, cobbles, boulders, excess construction material, lumber, steel, plastic, concrete, and asphalt.
- 1.6.44. Waste Oversize Debris: Waste that is required to be excavated and is: larger than 1 cubic metre or larger than 2 metres in one dimension, cannot be removed with a typical excavator with bucket, and requires the use of special equipment (e.g., saws, hydraulic cutters, excavator hammers, vibratory pile extractors). Includes bedrock, boulders, pilings, logs, timbers, building structures, and concrete foundations.
- 1.6.45. Waste Quality: soil or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands or any other land use specified in the BC *Contaminated Sites Regulation*.
- 1.6.46. Waste Reduction Plan: a written report which addresses opportunities for reduction, reuse or recycling of materials.
- 1.6.47. Work: see General Conditions.
- 1.6.48. Working Day: see General Conditions.

1.7. Action and Informational Submittals

SUMMARY OF WORK

- 1.7.1. After hours work: at least 5 Working Days prior to commencing after hours work Submit a schedule showing requested dates, times, and reasons for after hours work. Approval will only be granted for reasons valid in the opinion of the Departmental Representative and if request can be reasonably accommodated by other contracts.

1.8. Work Covered by Contract

- 1.8.1. Work under the Contract covers remediation of contaminated material by excavation and offsite treatment and/or disposal.
- 1.8.2. Work to be performed under the Contract includes, but is not limited to, the following items covered further in the Contract:
- 1.8.2.1. Prime Contractor for health and safety and environmental protection at Site.
 - 1.8.2.2. All required design activities to complete Work.
 - 1.8.2.3. Pre-mobilization Submittals.
 - 1.8.2.4. Progress Submittals, including cash flow and forecasting.
 - 1.8.2.5. Prepare Site for Work, including clearing site as required and provision of onsite temporary office facilities for Departmental Representative and consultants.
 - 1.8.2.6. Plan excavation.
 - 1.8.2.7. Remove and replace existing infrastructure.
 - 1.8.2.8. Excavate Non-Contaminated Material as instructed by the Departmental Representative.
 - 1.8.2.9. Excavate Contaminated Material as instructed by the Departmental Representative.
 - 1.8.2.10. Excavation of Contaminated Material to extents as shown on Drawings with the potential for residual contamination at Final Completion.
 - 1.8.2.11. Backfill excavations with clean existing and imported fill material which meets the CCME Canadian Environmental Quality Guidelines.
 - 1.8.2.12. Load and transport Contaminated Material and Non-Contaminated Material to a Disposal Facility for final disposal.
 - 1.8.2.13. Restore Site to pre-existing conditions.
 - 1.8.2.14. All ancillary activities required to complete Work.
- 1.8.3. Green Requirements:
- 1.8.3.1. Use only environmentally responsible green materials/products with no Volatile Organic Compounds (VOC) emissions or minimum VOC emissions of indoor off-gassing contaminants for improved indoor air quality – subject of acceptance of Submittal of Materials Safety Data Sheet (MSDS) Product Data.
 - 1.8.3.2. Use materials/products containing highest percentage of recycled and recovered materials practicable – consistent with maintaining cost effective satisfactory levels of competition.
 - 1.8.3.3. Adhere to waste reduction requirement for reuse or recycling of waste materials, thus diverting materials from Landfill.

SUMMARY OF WORK

1.8.4. Work not included in the Contract comprises such work and services specifically listed as:

1.8.4.1. Not Used.

1.9. Location

1.9.1. The Site location is shown on Drawings 1 and 2.

1.9.2. The civic street address for the Site is 3475 Byng Road, Port Hardy, BC.

1.10. Project/Site Conditions

1.10.1. Work at Site will involve contact with contaminated materials, requiring appropriate health and safety and environmental protection procedures.

1.10.2. Complete list of anticipated contaminants and concentration levels on the Site available separately in assessment reports.

1.10.3. Existing condition on the Site is shown on Drawing 3.

1.11. Other Contracts

1.11.1. Other contracts are currently in progress at Site.

1.11.2. Other contracts are:

1.11.2.1. Environmental and other consultants.

1.11.2.2. Site users as identified in Contract.

1.11.3. Further contracts may be awarded while the Contract is in progress.

1.11.4. Cooperate with other contractors in carrying out their respective works and carry out instructions from Departmental Representative.

1.11.5. Coordinate Work with that of other contractors. If any part of Work under the Contract depends for its proper execution or result upon Work of another contractor, report promptly to Departmental Representative, in writing, any defects which can interfere with proper execution of this Work.

1.12. Products Supplied by the Departmental Representative

1.12.1. Not Used.

1.13. Contractor's Use of Site

1.13.1. Use of Site:

1.13.1.1. For the sole benefit of Canada.

1.13.1.2. Exclusive and only for completion of the execution of Work.

1.13.1.3. Assume responsibility for assigned premises for performance of this Work.

1.13.1.4. Be responsible for coordination of all Work activities onsite, including the Work of other contractors engaged by the Departmental Representative.

1.13.2. There are no pre-existing arrangements for encroachment on the neighbouring properties. Shoring designs accommodating no offsite encroachment, or arrangements for offsite encroachment, are the responsibility of the Contractor.

1.13.3. Perform Work in accordance with Contract. Ensure Work is carried out in accordance with schedule accepted by Departmental Representative.

1.13.4. Do not unreasonably encumber Site with material or equipment.

1.14. Existing Permits

1.14.1. Existing permits are:

1.14.1.1. None

1.15. Schedule Requirements

1.15.1. Work to be initiated: within 5 days of Contract Award.

1.15.2. Pre-Mobilization Submittals: within 10 days of Contract Award.

1.15.3. Mobilization: within 15 days of Contract Award.

1.15.4. Site Works: Final Completion no later than February 15th, 2017.

1.15.5. Completion of the Work: no later than March 15th, 2017. Includes all final Submittals including as-built documents, the Certificate of Completion, and the Statutory Declaration at Final Completion.

1.16. Hours of Work

1.16.1. Restrictive as follows:

1.16.1.1. Working Day work hours are 07:00 to 19:00.

1.16.2. Obtain consent from Departmental Representative for all after hours Work, including weekends and holidays.

1.16.2.1. Proceed only as instructed by the Departmental Representative.

1.17. Security Clearances

1.17.1. Not Used.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Utility Locations: at least 5 Working Days prior to commencing any subsurface disturbance. Submit drawings identifying all utilities on the Site. Update drawings as instructed by the Departmental Representative.
- 1.3.2. Breakdown of Lump Sum Prices: at least 5 Working Days prior to submitting the first Progress Payment, Submit a breakdown of the Contract lump sum prices including labour, material and time, in detail as instructed by the Departmental Representative and aggregating Contract Amount.
- 1.3.3. Daily Work Records: at the end of each shift Submit daily Work records, during onsite Work. Include:
- 1.3.3.1. Quantities for each Description of Work identified in the Unit Price Table and Change Orders.
 - 1.3.3.2. Description of Work performed.
 - 1.3.3.3. Current Site conditions.
 - 1.3.3.4. General information including: date, time shift started and ended, Subcontractor(s) onsite, Health and Safety items, and Environmental Protection items.
 - 1.3.3.5. Signature of Superintendent and Departmental Representative.
- 1.3.4. Cash Flow: with each Progress Payment, Submit a cash flow forecast. Include:
- 1.3.4.1. Calculation of planned cost versus actual cost and schedule forecasting and cash flow projections on a monthly basis, indicating anticipated value of future Progress Payments, for each Description of Work identified in the Unit Price Table.
 - 1.3.4.2. Progress Payments will not be processed until cash flow has been accepted by the Departmental Representative.
- 1.3.5. Coordination Meeting Minutes and Drawings: at least 5 Working Days prior to relevant Work commencing, Submit final meeting minutes and drawings from coordination with Subcontractors.
- 1.3.6. Quality Management Plan: within 5 Working Days after Contract award. Submit a quality management plan. Include:
- 1.3.6.1. Details on planned review, inspection and testing to provide Quality Assurance and Quality Control for the Work.
 - 1.3.6.2. Subcontractors responsible for review, inspection and testing.
 - 1.3.6.3. Schedule of submittals of review, inspection and testing results.

GENERAL INSTRUCTIONS

- 1.3.7. Review, Inspection, and Testing Results: within 5 Working Days of receipt, Submit all results of reviews, inspection, and testing performed as part of the Work, including laboratory reports.

1.4. Division of Specifications

- 1.4.1. This specification is subdivided into Divisions and Sections in accordance with the six digit National Master Specifications System.
- 1.4.2. A Division or Section may consist of the Work of more than one Subcontractor. Responsibility for determining which Subcontractor provides the labour, material, equipment and services required to complete the Work rests solely with the Contractor.

1.5. Documents Required

- 1.5.1. Maintain 1 copy each of the following posted at the job Site:
- 1.5.1.1. General Conditions.
 - 1.5.1.2. Drawings.
 - 1.5.1.3. Specifications.
 - 1.5.1.4. Addenda or other modifications to Contract.
 - 1.5.1.5. Change orders.
 - 1.5.1.6. Copy of current Work schedule.
 - 1.5.1.7. Reviewed and final shop drawings Submittals.
 - 1.5.1.8. One set of record drawings and Specifications for “as-built” purposes.
 - 1.5.1.9. Field and laboratory test reports.
 - 1.5.1.10. Reviewed and accepted Submittals.
 - 1.5.1.11. Manufacturers’ installation and application instructions (as appropriate).
 - 1.5.1.12. *National Building Code of Canada* (as appropriate).
 - 1.5.1.13. Current construction standards of workmanship listed in technical Sections (as appropriate).
 - 1.5.1.14. Health and Safety documents, including all daily toolbox meetings, Notice of Project, and utility clearances.
 - 1.5.1.15. Environmental Protection Plan.
 - 1.5.1.16. Quality Management Plan.
 - 1.5.1.17. Final Meeting Minutes, Agendas and associated attachments.
 - 1.5.1.18. Permits and other approvals.

1.6. Setting out of Work

- 1.6.1. Assume full responsibility for and execute complete layout of Work to locations, lines and elevations in accordance with the Contract.
- 1.6.2. Provide devices needed to layout and construct Work.
- 1.6.3. Supply such services and devices in accordance with the Contract to facilitate Departmental Representative’s inspection of Work.

1.7. Acceptance of Substrates

GENERAL INSTRUCTIONS

- 1.7.1. Each trade must examine surfaces prepared by others and job conditions which can affect his work, and must report defects to the Departmental Representative. Commencement of Work will imply acceptance of prepared Work or substrate surfaces.

1.8. Works Coordination

- 1.8.1. Coordinate Work of Subcontractors.
- 1.8.1.1. Designate one person to be responsible for review of Contract and shop drawings and managing coordination of Work.
- 1.8.2. Convene meetings between Subcontractors whose Work interfaces and ensure awareness of areas and extent of interface required.
- 1.8.2.1. Provide each Subcontractor with complete Drawings and Specifications for Contract, to assist them in planning and carrying out their respective work.
- 1.8.2.2. Develop coordination drawings when required, illustrating potential interference between Work of various trades and distribute to affected parties.
- 1.8.2.3. Facilitate meeting and review coordination drawings. Ensure Subcontractors agree and sign off on coordination drawings.
- 1.8.2.4. Publish minutes of each meeting.
- 1.8.2.5. Submit a copy of coordination drawings and meeting minutes as instructed by the Departmental Representative.
- 1.8.3. Submit shop drawings and order of prefabricated equipment or rebuilt components only after coordination meeting for such items has taken place.
- 1.8.4. Work coordination:
- 1.8.4.1. Ensure cooperation between trades in order to facilitate general progress of Work and avoid situations of spatial interference.
- 1.8.4.2. Ensure that each trade provides all other trades reasonable opportunity for Final Completion of Work and in such a way as to prevent unnecessary delays, cutting, patching and removal or replacement of completed Work.
- 1.8.4.3. Ensure disputes between Subcontractors are resolved.
- 1.8.5. Failure to coordinate Work is responsibility of Contractor.

1.9. Approvals of Shop Drawings, Product Data and Samples

- 1.9.1. The term "shop drawings" means drawings, figures, diagrams, illustrations, schedules, performance charts, brochures and other data which are Submittals by Contractor to illustrate details of a portion of Work.
- 1.9.2. Submit as instructed by the Departmental Representative the requested shop drawings, product data, MSDS sheets and samples in accordance with the Contract.
- 1.9.3. Allow sufficient time for the following:
- 1.9.3.1. Review of product data.
- 1.9.3.2. Acceptance of shop drawings.
- 1.9.3.3. Review of re-submission.
- 1.9.3.4. Ordering of accepted material and/or products.

GENERAL INSTRUCTIONS**1.10. Relics and Antiquities**

- 1.10.1. See General Conditions.

1.11. Additional Drawings

- 1.11.1. The Departmental Representative may furnish additional Drawings for clarification. These additional Drawings have the same meaning and intent as if they were included with Drawings referred to in the Contract.
- 1.11.2. Upon request, Departmental Representative may furnish up to a maximum of 2 sets of Drawings for use by the Contractor at no additional cost. Should more than 2 sets of documents be required the Departmental Representative will provide them at additional cost.

1.12. Record Keeping

- 1.12.1. On Site Notifications: All correspondence from Contractor to the Departmental Representative, including Submittals, Quotes, and Extension Of Time On Contracts, must be as a sequentially numbered On Site Notifications. Include cross references to applicable On Site Instructions. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any On Site Notifications.
- 1.12.2. On Site Instructions: All correspondence from the Departmental Representative to the Contractor, including Contemplated Change Notices, Change Orders, and Extension of Time on Contracts, will be as sequentially numbered On Site Instructions. Include cross references to applicable On Site Notifications. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any On Site Instructions.
- 1.12.3. Maintain adequate records to support information provided to Departmental Representative.
- 1.12.4. Maintain bills of ladings for minimum of 300 days from date of shipment or longer period required by applicable law or regulation.

1.13. Change Documents

- 1.13.1. Change Documents do not relieve Contractor of any obligation.
- 1.13.2. Change Documents do not change the Contractor's responsibility for sequencing, methods and means.
- 1.13.3. Change Documents do not change by any reason the status of the Contractor, including the function of Prime Contractor or as supervisor.
- 1.13.4. Change Documents include:
- 1.13.4.1. Change Order: There may be an increase to the Contract Amount by reason of any Change Order. No Extension of Time for completion of the Work by reason of any Change Order.
- 1.13.4.2. Contemplated Change Notice: No increase to the Contract Amount by reason of any Contemplated Change Notice. No Extension of Time for completion of the Work by reason of any Contemplated Change Notice.

GENERAL INSTRUCTIONS

- 1.13.4.3. Extension of Time on Contracts: No increase to the Contract Amount by reason of any Extension of Time on Contracts. There may be an Extension of Time for completion of the Work by reason of an Extension of Time on Contracts.
- 1.13.4.4. Quote: No increase to the Contract Amount by reason of any Quote. No Extension of Time for completion of the Work by reason of any Quote. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any Quote.

1.14. System of Measurement

- 1.14.1. The metric system of measurement (SI) will be employed on the Contract.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL**1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Preconstruction Meeting Minutes: within 2 Working Days of the Preconstruction Meeting, Submit meeting minutes.

1.3.2. Progress Meeting Minutes: within 2 Working Days of a Progress Meeting, Submit meeting minutes.

1.3.3. Information for Progress Meetings: at least 2 Working Days prior to scheduled Progress Meetings, Submit all information in accordance with the Contract for Progress Meetings. Include:

1.3.3.1. Agenda for the proposed Progress Meeting.

1.3.3.2. Updated Project Schedule.

1.3.3.3. Copies of transport manifests and disposal receipts for all materials removed from Site.

1.3.3.4. Other information as instructed by the Departmental Representative or relevant to agenda for upcoming progress meeting.

1.3.4. Final Site Inspection: within 2 Working Days of the Final Site Inspection, Submit meeting minutes.

1.3.5. Closeout Meetings: within 2 Working Days of the Closeout Meeting, Submit meeting minutes.

1.4. Administrative

1.4.1. Schedule and administer project meetings throughout the progress of the Work weekly and at the call of the Departmental Representative.

1.4.2. Prepare agenda for meetings.

1.4.3. Submit written notice with agenda of each meeting 2 Working Days in advance of meeting date as instructed by the Departmental Representative.

1.4.4. Provide physical space and make arrangements for meetings, or arrange for teleconference meetings, as instructed by Departmental Representative.

1.4.5. Preside at meetings.

1.4.6. Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

1.4.7. Maintain records of meeting minutes for a minimum of 2 years after Work is completed.

1.4.8. Representative of Contractor, Subcontractor(s) and Supplier(s) attending meetings must be qualified and authorized to act on behalf of party each represents.

PROJECT MEETINGS**1.5. Preconstruction Meeting**

- 1.5.1. Within 5 Working Days after award of Contract, request a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities.
- 1.5.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.
- 1.5.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.
- 1.5.4. Agenda to include:
 - 1.5.4.1. Appointment of official representative of participants in the Work, including Contractor's Superintendent and Departmental Representative.
 - 1.5.4.2. Schedule of Work.
 - 1.5.4.3. Schedule of Submittals.
 - 1.5.4.4. Requirements for temporary facilities.
 - 1.5.4.5. Site security.
 - 1.5.4.6. Change orders, procedures, approvals required, administrative requirements.
 - 1.5.4.7. Monthly Progress Payments, administrative procedures, hold backs.
 - 1.5.4.8. Appointment of inspection and testing agencies or firms.
 - 1.5.4.9. List of Subcontractor(s).

1.6. Progress Meetings

- 1.6.1. During course of Work schedule progress meetings weekly subject to approval by Departmental Representative.
- 1.6.2. Contractor, Superintendent, major Subcontractor(s) involved in Work, and Departmental Representative are to be in attendance.
- 1.6.3. Agenda to include:
 - 1.6.3.1. Review and acceptance of minutes of previous meeting.
 - 1.6.3.2. Review health and safety, including incidents, near misses, and corrective measures.
 - 1.6.3.3. Review Environmental Protection, including incidents, near misses, and corrective measures.
 - 1.6.3.4. Review contractual compliance.
 - 1.6.3.5. Review regulatory compliance.
 - 1.6.3.6. Review communications, problems or concerns with community.
 - 1.6.3.7. Review of Work progress since previous meeting.
 - 1.6.3.8. Field observations, problems, conflicts.
 - 1.6.3.9. Updated progress schedule detailing activities planned over next 2 week period. Include review of progress with respect to previously established dates for starting and stopping various stages of Work.
 - 1.6.3.10. Problems which impede construction schedule.
 - 1.6.3.11. Corrective measures and procedures to regain projected schedule.
 - 1.6.3.12. Revision to construction schedule.
 - 1.6.3.13. Progress schedule, during succeeding Work period.

PROJECT MEETINGS

- 1.6.3.14. Review submittal schedules: expedite as required.
- 1.6.3.15. Maintenance of quality standards.
- 1.6.3.16. Quantities of material transported, treated, and disposed.
- 1.6.3.17. Review proposed changes for affect on construction schedule and on Final Completion date.
- 1.6.3.18. Other business.

1.7. Toolbox Meetings

- 1.7.1. During the course of the Work, schedule daily toolbox meetings at the start of each Work shift. Multiple meetings are required if the Contractor works multiple shifts within a 24-hour period.
- 1.7.2. All on Site workers to attend, including Contractor, Superintendent, major Subcontractor(s), and environmental consultants. Departmental Representative may attend.
- 1.7.3. Agenda to include:
 - 1.7.3.1. Planned Work activities and environmental considerations for that shift.
 - 1.7.3.2. Coordination activities required between Contractor, Subcontractor(s), Departmental Representative, and other contractor(s) including environmental consultant.
 - 1.7.3.3. Health and Safety items.
 - 1.7.3.4. Environmental Protection items.

1.8. Final Site Inspection

- 1.8.1. Within 5 Working Days of completion of Site Works but prior to Demobilization, request a meeting on Site to review the Site.
- 1.8.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.
- 1.8.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.
- 1.8.4. Agenda to include:
 - 1.8.4.1. Inspect removal of all temporary equipment, materials, supplies, and facilities.
 - 1.8.4.2. Inspect final surface grades.
 - 1.8.4.3. Inspect final vegetation.
 - 1.8.4.4. Inspect permanent facilities for performance and damage.
 - 1.8.4.5. Document all damage, deficiencies, missing items, and non-conformance.
- 1.8.5. If required, and in the opinion of the Departmental Representative, perform another Final Site Inspection after resolving all documented damage, deficiencies, missing items, and non-conformance.

1.9. Closeout Meeting

- 1.9.1. Within 10 Working Days of completion of the Work, request a meeting to review the project.

PROJECT MEETINGS

- 1.9.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.
- 1.9.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.
- 1.9.4. Agenda to include:
 - 1.9.4.1. Review Certificate of Completion.
 - 1.9.4.2. Review final payment.
 - 1.9.4.3. Identify lessons learned.
 - 1.9.4.4. Perform Contractor Performance Evaluation Report Form.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Schedule: within 10 Working Days after Contract award, Submit a Master Plan.

1.3.2. Schedule of Interruption of Services: at least 5 Working Days prior to any shutdown or closure of active utilities or facilities Submit a schedule identifying type of service and dates of shutdown or closure.

1.3.3. Project Schedule and Updates: with Progress Payment, Submit a Project Schedule updated as appropriate. Progress Payment submission is incomplete without an updated Project Schedule acceptable to Departmental Representative.

1.4. Requirements

1.4.1. Ensure Master Plan and detail Project Schedules are practical and remain within specified Contract duration.

1.4.2. Plan to complete Work in accordance with prescribed milestones and time frame.

1.4.3. Limit activity durations to maximum of approximately 10 Working Days, to allow for progress reporting.

1.4.4. Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.5. Master Plan

1.5.1. Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart

1.5.2. Departmental Representative will review and return revised schedules within 5 Working Days.

1.5.3. Revise impractical schedule and resubmit within 5 Working Days.

1.5.4. Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6. Project Schedule

1.6.1. Develop detailed Project Schedule derived from Master Plan.

1.6.2. Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

1.6.2.1. Dates of commencement and completion of Work for each Description of Work identified on the Unit Price Table.

- 1.6.2.2. Dates of Submittals including shop drawings, product data, MSDS sheets and samples.
- 1.6.2.3. Dates of inspection and testing.
- 1.6.2.4. Final Completion date within the time period in accordance with the Contract, including Amendments.

1.7. Project Schedule Reporting

- 1.7.1. Update Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress.
- 1.7.2. Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.8. Project Meetings

- 1.8.1. Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- 1.8.2. Weather related delays with their remedial measures will be discussed and negotiated

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

SUBMITTAL PROCEDURES**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Shop Drawings: at least 5 Working Days prior to commencing applicable Work, Submit Shop Drawings signed by a Qualified Professional.

1.4. General

- 1.4.1. This section specifies general requirements and procedures for the Contractor's Submittals of design drawings, shop drawings, product data, samples and other submittals in accordance with the Contract to Departmental Representative. Additional specific requirements for Submittals are identified in individual technical sections.
- 1.4.2. Present shop drawings, product data and samples in SI Metric units.
- 1.4.3. Where items or information is not produced in SI Metric units, converted values are acceptable.
- 1.4.4. Contractor's responsibility for errors and omissions in Submittals is not relieved by the Departmental Representative's review of Submittals.
- 1.4.5. Notify Departmental Representative in writing at time of Submittals, identifying deviations from requirements of Contract and stating reasons for deviations.
- 1.4.6. Contractor's responsibility for deviations in Submittals from requirements of Contract is not relieved by the Departmental Representative's review of Submittals unless Departmental Representative gives written acceptance of specific deviations.
- 1.4.7. Make any changes in Submittals which Departmental Representative requires to be in accordance with the Contract and resubmit as instructed by the Departmental Representative.
- 1.4.8. Notify Departmental Representative in writing, when resubmitting, of any revisions other than those instructed by the Departmental Representative.
- 1.4.9. Do not proceed with Work until relevant Submittals are finalized and have been accepted.
- 1.4.10. Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to Submit in ample time is responsibility of Contractor.
- 1.4.11. Review Submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each Submittal has been checked and coordinated with requirements of Work and Contract. Submittals not stamped, signed, dated

SUBMITTAL PROCEDURES

and identified as to specific project will be returned without being examined and considered rejected.

- 1.4.12. Verify field measurements and affected adjacent Work are coordinated.
- 1.4.13. Adjustments made on Submittals by the Departmental Representative will not result in an increase the Contract Amount nor an Extension of Time for completion of the Work. If adjustments result in an increase to the Contract Amount or an Extension of Time for completion of the Work, notify Departmental Representative and receive approval prior to proceeding with Work.
- 1.4.14. Keep one final copy of each Submittal onsite.

1.5. Submission Requirements

- 1.5.1. Coordinate each Submittal with the requirements of the Work and the Contract. Individual Submittals will not be reviewed until:
 - 1.5.1.1. Submittals are complete.
 - 1.5.1.2. All related information is available.
- 1.5.2. Allow 10 Working Days for Departmental Representative's review of each Submittal, unless otherwise specified.
- 1.5.3. All Submittals are to be sent to Departmental Representative in duplicate as a hardcopy and in electronic format compatible with Departmental Representative's software.
- 1.5.4. Accompany Submittals with On Site Notification:
 - 1.5.4.1. Date.
 - 1.5.4.2. Project title and number.
 - 1.5.4.3. Contractor's name and address.
 - 1.5.4.4. Identification and quantity of each shop drawing, product data and sample.
 - 1.5.4.5. Other pertinent data.
- 1.5.5. Submittals must include:
 - 1.5.5.1. Date and revision dates.
 - 1.5.5.2. Project title and number.
 - 1.5.5.3. Name and address of:
 - 1.5.5.3.1. Subcontractor.
 - 1.5.5.3.2. Supplier.
 - 1.5.5.3.3. Manufacturer.
 - 1.5.5.4. Signature of Superintendent, certifying approval of Submittals, verification of field measurements and in accordance with the Contract.
 - 1.5.5.5. Qualified Professional to sign and seal Submittals in accordance with the Contract. Submittals to include at a minimum 1 hard copy of original ink sealed document.
 - 1.5.5.6. Details of appropriate portions of Work as applicable.

1.6. Shop Drawings

- 1.6.1. Shop drawings are drawings, figures, diagrams, illustrations, schedules, performance charts, brochures and other data intended to illustrate details of a portion of the Work which are provided by the Qualified Professional of record.
- 1.6.2. Maximum sheet size: ANSI E (864 x 1118 mm).
- 1.6.3. Submit, as instructed by the Departmental Representative, 2 copies of shop drawings for each requirement requested in the specification sections and/or as instructed by the Departmental Representative.
- 1.6.4. Cross-reference shop drawing information to applicable portions of the Contract.
- 1.6.5. Qualified Professional to sign and seal each individual shop drawing.
- 1.6.6. Qualified Professional to sign and seal final design drawings and submit as instructed by the Departmental Representative upon Final Completion of the construction project. Final design drawings are prepared by a Qualified Professional to reflect design changes made during the construction of the Remediation by Excavation project. Final design drawings are intended to incorporate addenda, change orders and other significant design changes, but not necessarily Site instructions.
- 1.6.7. Shop drawings must include:
 - 1.6.7.1. The original date of issue.
 - 1.6.7.2. The dates of all applicable revisions.
 - 1.6.7.3. The project title.
 - 1.6.7.4. The project address.
 - 1.6.7.5. The project number.
 - 1.6.7.6. Wherever applicable, the name(s) of the: Contractor, Subcontractor(s), Supplier(s), manufacturers, and separate detailers.
 - 1.6.7.7. The sequence number for each shop drawing.
 - 1.6.7.8. Identifications of all products and materials.
 - 1.6.7.9. Relation to adjacent structures or materials.
 - 1.6.7.10. Clearly identified field dimensions.
 - 1.6.7.11. Applicable standards.

1.7. Shop Drawings Review

- 1.7.1. Departmental Representative's review of shop drawings is to determine if shop drawings are consistent with the general intent of the Contract and are in accordance with the Contract.
- 1.7.2. This review will not mean that Departmental Representative approves the detail design inherent in the shop drawings, responsibility for which will remain with Contractor submitting same.
- 1.7.3. This review will not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the Contract.
- 1.7.4. Without restricting the generality of the foregoing, be responsible for:
 - 1.7.4.1. Dimensions to be confirmed and correlated at the Site.

- 1.7.4.2. Information that pertains solely to fabrication processes or to techniques of construction and installation.
- 1.7.4.3. Coordination of the Work of all sub-trades.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

SPECIAL PROCEDURES FOR TRAFFIC CONTROL**4. PART 1 - GENERAL****4.1. Measurement Procedures**

4.1.1. See 01 11 00.

4.2. Definitions

4.2.1. See 01 11 00.

4.3. Action and Informational Submittals

4.3.1. List of Signs and Devices: within 40 Working Days after Contract award and prior to mobilization to Site Submit a list of signs and other devices required for the project.

4.4. Protection of Public Traffic

4.4.1. Comply with requirements of acts, regulations and bylaws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.

4.4.2. Comply with current version of BC Ministry of Transportation and Infrastructure *Traffic Control Manual for Work on Roadways*.

4.4.3. Provide and maintain road access and egress to property fronting Site and in other areas in accordance with the Contract, except where other means of road access exist that are accepted.

4.5. Informational and Warning Devices

4.5.1. Provide and maintain signs, flashing warning lights, and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Work which requires road user response.

4.5.2. Supply and erect signs, delineators, barricades and miscellaneous warning devices to comply with current version of BC Ministry of Transportation and Infrastructure *Traffic Control Manual for Work on Roadways*.

4.5.3. Place signs and other devices in locations recommended in current version of BC Ministry of Transportation and Infrastructure *Traffic Control Manual for Work on Roadways*.

4.5.4. Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation onsite changes, revise list for approval.

4.5.5. Continually maintain traffic control devices in use:

4.5.5.1. Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.

4.5.5.2. Remove or cover signs which do not apply to conditions existing from day to day.

SPECIAL PROCEDURES FOR TRAFFIC CONTROL

4.6. Control of Public Traffic

- 4.6.1. Provide competent flag personnel, trained in accordance with, and properly equipped to, current version of BC Ministry of Transportation and Infrastructure *Traffic Control Manual for Work on Roadways* for situations as follows:
- 4.6.1.1. When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
- 4.6.1.2. In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

4.7. Operational Requirements

- 4.7.1. Maintain existing conditions for traffic throughout period of Contract except that, when required for construction in accordance with the Contract and when measures have been taken in accordance with the Contract and accepted by Departmental Representative to protect and control public traffic, existing conditions for traffic to be restricted as follows:
- 4.7.1.1. Maintain existing conditions for traffic crossing right-of-way.

5. PART 2 - PRODUCTS

5.1. Not Used

- 5.1.1. Not Used.

6. PART 3 - EXECUTION

6.1. Not Used

- 6.1.1. Not Used.

END OF SECTION



SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Contaminated Material and Non-Contaminated Material Management Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit plan detailing management of Contaminated Material and Non-Contaminated Material. Include:

- 1.3.1.1. Sequence, methods and means to ensure different categories of waste are segregated.
- 1.3.1.2. Sequence, methods and means to handle, transport, and store Contaminated Material and Non-Contaminated Material onsite.
- 1.3.1.3. Sequence, methods and means to transport Contaminated Material and Non-Contaminated Material offsite. Include name, vehicle type, and licenses of transporters. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of all transfer stations and interim storage facilities.
- 1.3.1.4. Sequence, methods and means to dispose Contaminated Material and Non-Contaminated Material offsite. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of Disposal Facilities.
- 1.3.2. Contaminated Water Treatment Plant Provision Plan: within 5 Working Days after Contract award and prior to mobilization to Site, Submit design, operation procedures, manufacturers' instructions, and monitoring and sampling plan of onsite Contaminated Water Treatment Plant.
- 1.3.3. Contaminated Water Treatment Plant Initial Testing: within 5 Working Days of conducting initial operations testing, and prior to operating or discharge, Submit results of initial operations test.
- 1.3.4. Contaminated Water Treatment Plant Operational Testing: within 5 Working Days of sampling Submit sampling results of operational (recurrent) testing.
- 1.3.5. Transport Manifests: within 5 Working Days of offsite transport, Submit documentation verifying that material has been transported appropriately. Include:
 - 1.3.5.1. Method of transport.
 - 1.3.5.2. Name of transport company.
 - 1.3.5.3. Weigh scale receipt including location, date, and weight of loading.
 - 1.3.5.4. Weigh scale receipt including location, date, and weight of unloading.

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.3.6. Certificate of Disposal: within 30 Working Days of disposal at Disposal Facility, Submit documentation verifying that materials have been disposed by Contractor. Include:
- 1.3.6.1. Issued by the Disposal Facility.
 - 1.3.6.2. On company letterhead.
 - 1.3.6.3. Name and location of facility where the material is being disposed.
 - 1.3.6.4. Date and weight for each shipment received and total weight received at the Disposal Facility.
 - 1.3.6.5. Identification of final ownership of material.
 - 1.3.6.6. Signed by identified authorized disposal company representative.

1.4. Sequencing and Scheduling

- 1.4.1. Commence Work involving contact with Contaminated or potentially Contaminated Material or Wastewater after all applicable Environmental Protection procedures (including those identified in Contaminated Material and Non-Contaminated Material Management Plan and Environmental Protection Plan) and facilities (including those identified in Site Layout) are operational and accepted by Departmental Representative.
- 1.4.2. Plan work sequencing and traffic patterns to prevent contamination of clean areas due to traffic or debris.

1.5. Equipment Decontamination Facility

- 1.5.1. Prior to commencing Work involving equipment contact with potentially Contaminated Material, construct equipment decontamination facilities to accommodate the largest potentially contaminated equipment onsite.
- 1.5.2. Collect and contain equipment decontamination wastewater and sediment. Transfer collected wastewater and sediment to treatment facilities accepted by Departmental Representative.

1.6. Personnel Decontamination Facility

- 1.6.1. Provide an area or areas close to the workers' changing facilities to enable workers and other personnel leaving areas such as exclusion area to remove deleterious and contaminated materials from boots, clothing and skin surfaces.
- 1.6.2. Be responsible for ensuring that all materials, chemicals, protective clothing, wash water and deleterious materials are collected, treated and disposed of in accordance with applicable environmental standards and regulations.
- 1.6.3. Personnel Decontamination Facility to be available for use by persons other than the Contractor's workers and Subcontractors, including federal employees, other contractor(s), and environmental agencies. Provide use of facilities to other persons.

1.7. Drum Staging Pad

- 1.7.1. Provide, maintain, and operate drum staging pad as required.

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.7.2. Construct drum staging pad with sump capable of collecting leachate and rain runoff. Place impermeable liner that contours over top of berm, and collects leachate and runoff from staging pad which is conducted solely to sump on staging pad. Leachate is Contaminated Water.

1.8. Contaminated Water Treatment Plant

1.8.1. Design Requirements:

- 1.8.1.1. Design and Operating Criteria: design Contaminated Water Treatment Plant capable of treating Contaminated Water generated from dewatering excavations and Work areas to meet Discharge Approval requirements, capable of removing oil, suspended solids, particulates, and asbestos fibers, and filter water through 5-micron particulate filter prior to discharge.
- 1.8.1.2. Ensure that discharges from Site are in compliance with applicable permit requirements and limitations.
- 1.8.1.3. Design piping to transfer liquid/solid mixtures generated by dewatering operations which require treatment to Contaminated Water Treatment Plant.
- 1.8.1.4. Design Contaminated Water Treatment Plant capable of receiving liquid/solid mixtures and not causing delay to dewatering operations.
- 1.8.1.5. Piping: suitable material type, of sufficient diameter and structural thickness for purpose intended; satisfactorily tested for leaks with potable water in presence of Departmental Representative before handling Contaminated Water.
- 1.8.2. Installation:
- 1.8.2.1. Prepare Site for Contaminated Water Treatment Plant.
- 1.8.2.2. Install component systems in accordance with installation procedures and as required.
- 1.8.2.3. Following installation of system, implement initial operation test in accordance with procedures developed by Contractor and submit results as instructed by the Departmental Representative.
- 1.8.2.4. Install piping in accordance with manufacturer's instructions and test for leakage using potable water prior to commencing dewatering and treatment operations.
- 1.8.3. Initial Testing: determine performance of Contaminated Water Treatment Plant provided by Contractor as follows prior to commencing excavation:
- 1.8.3.1. Test run with potable water to ensure it is operating currently and no leaks are occurring.
- 1.8.3.2. Performance verification (contaminant removal) of Contaminated Water treated, stored, tested, assessed, and accepted by Departmental Representative prior to discharge.
- 1.8.3.3. Provide access for independent collection of treated stored water samples by the Departmental Representative.
- 1.8.4. Operational Testing:

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.8.4.1. Operate Contaminated Water Treatment Plant using experienced, qualified personnel and in accordance with manufacturer's instructions and procedures as Submittals by Contractor.
- 1.8.4.2. Collect, analyze, and assess samples as recommended by a Qualified Professional.
- 1.8.4.3. Provide access for independent collection of samples by the Departmental Representative.
- 1.8.4.4. On basis of analytical results by Contractor or Departmental Representative obtained from samples collected at the discharge point, make system modifications required for effluent to satisfy effluent criteria, or continue with normal dewatering operations as instructed by the Departmental Representative.
- 1.8.5. Decommissioning/Dismantling:
 - 1.8.5.1. Decontaminate and remove salvageable components of Contaminated Water Treatment Plant including treatment system, pumps, piping, and electrical equipment.
 - 1.8.5.2. Dispose of non-salvageable equipment and materials at Disposal Facility accepted by the Departmental Representative. Decontaminate salvageable equipment as required prior to demobilization from Site.

1.9. Soil Stockpiling

- 1.9.1. Provide, maintain, and operate temporary storage/stockpiling facilities as per Contractor's Site Layout.
- 1.9.2. Segregate Contaminated Material from Non-Contaminated Material into separate stockpiles to prevent cross-contamination.
- 1.9.3. Prevent precipitation from infiltrating or from directly running off stockpiled materials. Cover stockpiled materials with an impermeable cover during periods of Work stoppage including at end of each Working Day and as instructed by the Departmental Representative.
- 1.9.4. Securely fasten covers over stockpiled material until material is loaded for offsite transport.
- 1.9.5. Store excavated Non-Contaminated Material only on non-contaminated surface areas. Ensure no contact between excavated Non-Contaminated Material and drainage of Contaminated Water or Contaminated Material.
- 1.9.6. Store excavated Contaminated Material in temporary stockpiles.
 - 1.9.6.1. Install impermeable liner (eg asphalt or minimum 20 mil (0.5mm) polyethylene) below proposed stockpile locations to prevent contact between stockpile material and ground.
 - 1.9.6.2. Cover stockpiled material when not being worked or sampled to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.
 - 1.9.6.3. Prevent Non-Contaminated Water, such as surface water, from coming into contact with Contaminated Material stockpiles.

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.9.7. Segregate Contaminated Material into different treatment/disposal streams, including at a minimum:
 - 1.9.7.1. Hazardous Waste
 - 1.9.7.2. Waste Quality
- 1.9.8. Segregate different suspect material in discrete stockpiles to facilitate ex-situ characterization as instructed by the Departmental Representative.
- 1.9.9. Assist Departmental Representative in collection of stockpile samples for exsitu characterization. Ex-situ characterization may take up to 10 Working Days, not counting the day the sample is collected. No Standby Time charges or increases to Contract Amount or Extension of Time for completion of the Work can be incurred for Confirmation Sample results provided within 5 Working Days, not counting the day the sample is collected.
- 1.9.10. Do not remove Contaminated Material from stockpiles until exsitu characterization completed and as instructed by Departmental Representative.

1.10. Equipment Decontamination

- 1.10.1. At minimum, perform following steps during equipment decontamination: mechanically remove packed dirt, grit, and debris by scraping and brushing without using steam or high-pressure water to reduce amount of water needed and to reduce amount of contaminated rinsate generated.
- 1.10.2. If required, as instructed by the Departmental Representative, use high-pressure, low-volume, hot water or steam supplemented by detergents or solvents as appropriate. Pay particular attention to tire treads, equipment tracks, springs, joints, sprockets, and undercarriages. Scrub surfaces with long handle scrub brushes and cleaning agent. Rinse off and collect cleaning agent. Air dry equipment in clean area before removing from Site or travelling on clean areas. Perform assessment as instructed by the Departmental Representative to determine effectiveness of decontamination.
 - 1.10.2.1. Take appropriate measures necessary to minimize drift of mist and spray during decontamination including provision of wind screens.
 - 1.10.2.2. Collect decontamination wastewater and sediment which accumulate in decontamination location. Treat collected wastewater as Contaminated Water. Manage decontamination sediment as Hazardous Waste.
- 1.10.3. In the opinion of the Departmental Representative, each piece of equipment must be inspected by the Departmental Representative after decontamination and prior to travel on clean areas or demobilization from Site. Perform additional decontamination as required in the opinion of the Departmental Representative.
- 1.10.4. Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.

1.11. Progress Decontamination

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.11.1. Decontaminate equipment after working in potentially contaminated Work areas and prior to subsequent Work or travel on clean areas.

1.12. Final Decontamination

- 1.12.1. Perform final decontamination of construction facilities, equipment, and materials which may have come in contact with potentially Contaminated Material prior to demobilization from Site.

1.13. Drums

- 1.13.1. Storage of liquid waste: 200 L steel drums meeting Transportation and Dangerous Goods Act, closable lids, complete with labels for marking contents and date filled.
- 1.13.2. Storage of solid waste: 200 L steel drums meeting Transportation and Dangerous Goods Act, closable lids, complete with labels for marking contents and date filled.

1.14. Contaminated Water

- 1.14.1. Assume ownership of, and be responsible for Contaminated Water once it is loaded on a vehicle, barge, or other vessel for transport offsite.
- 1.14.2. Collect Contaminated Water that has, or potentially has, come into contact with Contaminated Material including excavation and stockpile areas, or is otherwise potentially contaminated from Work activities.
- 1.14.3. Transport and treat collected Contaminated Water at Contaminated Water Treatment Plant.
- 1.14.4. Discharge to environment: obtain Discharge Approval from authority having jurisdiction. Comply with Waterway Impact Requirements.

1.15. Contaminated Material Management

- 1.15.1. Remove all Contaminated Material within Work areas in accordance with the Contract and as instructed by the Departmental Representative.
- 1.15.2. Minimize generation of Contaminated Material to greatest extent practicable. Take necessary precautions to avoid mixing during excavation, handling, loading, stockpiling, and transport of Non-Contaminated Material with Contaminated Material.
- 1.15.3. Segregate, excavate, handle, stockpile, load, transport, treat, and dispose Contaminated Material separately into the following classifications in accordance with the Contract or as instructed by the Departmental Representative based on insitu results, field observations, field measurements, and/or ex-situ characterization:
 - 1.15.3.1. Waste Quality
- 1.15.4. Handle, stockpile, load, and transport Contaminated Material from the Site separately from material from other sites.

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.15.5. Treat and dispose Contaminated Material from the Site separately from material from other sites to the extent practicable as acceptable to the Departmental Representative.
- 1.15.6. Material characterization additional to information provided in Contract required by transport, Treatment Facility or Disposal Facility responsibility of Contractor.

1.16. Contaminated Material Transport-Offsite

- 1.16.1. Assume ownership of, and be responsible for, Contaminated Material once it is loaded on a vehicle for transport.
- 1.16.2. Transport material as soon as practical. Do not unreasonably stockpile material onsite.
- 1.16.3. Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.
- 1.16.4. Excess water in soil or sediment must not be allowed to flow out of vehicle or vessel during transport.
- 1.16.5. Stabilize soil and sediment as necessary.
- 1.16.6. All vehicles and operators must be appropriately licensed and equipped to transport Hazardous Waste soil and sediment.
- 1.16.7. Manifest and correlate weights of all material transported from Site documenting weight at removal from Site, movement, transfer stations, interim storage and treatment, and weight of material at final Disposal Facility. Submit all manifests, as instructed by the Departmental Representative.
- 1.16.8. Material transported with discrepancies in manifests must be resolved as required by regulations and as acceptable to the Departmental Representative. Discrepancies include:
 - 1.16.8.1. No manifest or an incomplete manifest.
 - 1.16.8.2. The material transported does not match the description in the manifest.
 - 1.16.8.3. The amount transported differs by more than 5% in the manifest.
 - 1.16.8.4. The material transported is in a hazardous condition.

1.17. Contaminated Material Transport-Onsite

- 1.17.1. Assume ownership of, and be responsible for, Contaminated Material once it is loaded on a vehicle, barge, or other vessel for transport.
- 1.17.2. Transport material as soon as practical. Do not unreasonably stockpile material onsite.
- 1.17.3. Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.
- 1.17.4. Excess water in soil or sediment must not be allowed to flow out of vehicle or vessel during transport.
- 1.17.5. Stabilize soil and sediment as necessary.
- 1.17.6. All vehicles, vessels and operators must be appropriately licensed and equipped to transport Hazardous Waste soil and sediment.

SPECIAL PROJECT PROCEDURES FOR CONTAMINATED SITES

- 1.17.7. Transport material to location shown on Drawings.
- 1.17.8. Place in Treatment Facility-Onsite in locations and thicknesses as shown on Drawings.
- 1.17.9. Be responsible for any damage to Treatment Facility-Onsite caused by placement.

1.18. Contaminated Material Disposal

- 1.18.1. Contaminated Material Disposal: dispose Contaminated Material at Disposal Facility provided by Contractor and accepted by the Departmental Representative.
- 1.18.2. Disposal Facility must:
 - 1.18.2.1. Be designed, constructed and operated to prevent any pollution from being caused by the facility outside the area of the facility from waste placed in or on land within the facility.
 - 1.18.2.2. Hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by the province for the disposal of soil or other material that is Waste Quality.
 - 1.18.2.3. Comply with applicable municipal zoning, bylaws, and other applicable requirements.
- 1.18.3. Dispose material as soon as practical and within 30 Working Days of leaving Site or as required by Contract unless otherwise accepted by Departmental Representative.
- 1.18.4. Material sent to a Disposal Facility must be permanently stored at that facility.
- 1.18.5. If proposed Disposal Facility is not acceptable to Departmental Representative, provide an alternate Disposal Facility that is acceptable.
- 1.18.6. Submit Certificates of Disposal for all material disposed offsite.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION



1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Submit to Departmental Representative Submittals listed for review.
- 1.3.2. Work affected by Submittal must not proceed until review is complete.
- 1.3.3. Submit the following:
 - 1.3.3.1. Health and Safety Plan.
 - 1.3.3.2. Copies of reports or directions issued by federal and provincial health and safety inspectors.
 - 1.3.3.3. Copies of incident and accident reports.
 - 1.3.3.4. Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - 1.3.3.5. Emergency Procedures.
 - 1.3.3.6. Notice of Project.
- 1.3.4. The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 Working Days after receipt of the plan.
- 1.3.5. If changes are required, revise the plan as appropriate and resubmit to Departmental Representative within 5 Working Days.
- 1.3.6. Submittal of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It will not:
 - 1.3.6.1. Be construed to imply approval by the Departmental Representative.
 - 1.3.6.2. Be interpreted as a warranty of being complete, accurate and legislatively compliant.
 - 1.3.6.3. Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.4. References

- 1.4.1. Government of Canada:
 - 1.4.1.1. Canada Labour Code - Part II.
 - 1.4.1.2. Canada Occupational Health and Safety Regulations.
- 1.4.2. National Building Code of Canada (NBC):
 - 1.4.2.1. Part 8, Safety Measures at Construction and Demolition Sites.
- 1.4.3. Canadian Standards Association (CSA) as amended:
 - 1.4.3.1. CSA S269.1-1975 (R2003) Falsework for Construction Purposes.

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.4.3.2. CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures.
- 1.4.4. National Fire Code of Canada 2010 (as amended):
 - 1.4.4.1. Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
 - 1.4.4.2. FCC No. 302, Standard for Welding and Cutting.
- 1.4.5. American National Standards Institute (ANSI):
 - 1.4.5.1. ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
- 1.4.6. Province of British Columbia:
 - 1.4.6.1. Workers Compensation Act Part 3-Occupational Health and Safety.
 - 1.4.6.2. Occupational Health and Safety Regulation.

1.5. Regulatory Requirements

- 1.5.1. Comply with codes, acts, bylaws, standards and regulations applicable to the performance of the Work in accordance with the Contract to ensure safe operations at Site.
- 1.5.2. In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will instruct on the course of action to be followed.

1.6. Worker's Compensation Board Coverage

- 1.6.1. Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the Final Completion of the Work.
- 1.6.2. Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

1.7. Compliance with Regulations

- 1.7.1. PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- 1.7.2. It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the Work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

1.8. Responsibility

- 1.8.1. Assume responsibility as the Prime Contractor for Work under this Contract.
 - 1.8.1.1. Be responsible for health and safety of persons onsite, safety of property onsite and for protection of persons adjacent to Site and environment to extent that they may be affected by conduct of Work.

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.8.1.2. Comply with and enforce compliance by employees with safety requirements of Contract, applicable federal, provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9. Health and Safety Coordinator

- 1.9.1. The Health and Safety Coordinator must:
 - 1.9.1.1. Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the Site to perform Work.
 - 1.9.1.2. Be responsible for implementing, daily enforcing, and monitoring the site-specific Health and Safety Plan.
 - 1.9.1.3. Be on Site during execution of Work.

1.10. General Conditions

- 1.10.1. Provide safety barricades and lights around Site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- 1.10.2. Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the Site:
 - 1.10.2.1. Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.

1.11. Project/Site Conditions

- 1.11.1. Work at Site will involve contact with contaminants identified in Specifications and environmental reports.

1.12. Work Permits

- 1.12.1. Obtain specialty permits related to project before start of Work.

1.13. Filing of Notice

- 1.13.1. The Prime Contractor is to complete and submit a Notice of Project as required by Provincial authorities.
- 1.13.2. Provide copies of all notices to the Departmental Representative.

1.14. Health and Safety Plan

- 1.14.1. Conduct a site-specific hazard assessment based on review of Contract, required Work, and project Site. Identify any known and potential health risks and safety hazards.
- 1.14.2. Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - 1.14.2.1. Primary requirements:
 - 1.14.2.1.1. Contractor's safety policy.
 - 1.14.2.1.2. Identification of applicable compliance obligations.

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.14.2.1.3. Definition of responsibilities for project safety/organization chart for project.
- 1.14.2.1.4. General safety rules for project.
- 1.14.2.1.5. Job-specific safe work, procedures.
- 1.14.2.1.6. Inspection policy and procedures.
- 1.14.2.1.7. Incident reporting and investigation policy and procedures.
- 1.14.2.1.8. Occupational Health and Safety Committee/Representative procedures.
- 1.14.2.1.9. Occupational Health and Safety meetings.
- 1.14.2.1.10. Occupational Health and Safety communications and record keeping procedures.
- 1.14.2.2. Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the Work.
- 1.14.2.3. List hazardous materials to be brought onsite as required by Work.
- 1.14.2.4. Indicate engineering and administrative control measures to be implemented at the Site for managing identified risks and hazards.
- 1.14.2.5. Identify personal protective equipment (PPE) to be used by workers.
- 1.14.2.6. Identify personnel and alternates responsible for site safety and health.
- 1.14.2.7. Identify personnel training requirements and training plan, including site orientation for new workers.
- 1.14.3. Develop the plan in collaboration with all Subcontractors. Ensure that work/activities of Subcontractors are included in the hazard assessment and are reflected in the plan.
- 1.14.4. Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
- 1.14.5. Departmental Representative's review: the review of Health and Safety Plan by Public Service and Procurement Canada (PWGSC) will not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract.

1.15. Emergency Procedures

- 1.15.1. List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (ie names/telephone numbers) of:
 - 1.15.1.1. Designated personnel from own company.
 - 1.15.1.2. Regulatory agencies applicable to Work and as per legislated regulations.
 - 1.15.1.3. Local emergency resources.
 - 1.15.1.4. Departmental Representative and site staff.
- 1.15.2. Include the following provisions in the emergency procedures:
 - 1.15.2.1. Notify workers and the first-aid attendant, of the nature and location of the emergency.
 - 1.15.2.2. Evacuate all workers safely.
 - 1.15.2.3. Check and confirm the safe evacuation of all workers.

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.15.2.4. Notify the fire department or other emergency responders.
- 1.15.2.5. Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
- 1.15.2.6. Notify Departmental Representative and Site staff.
- 1.15.3. Provide written rescue/evacuation procedures as required for, but not limited to:
 - 1.15.3.1. Work at high angles.
 - 1.15.3.2. Work in confined spaces or where there is a risk of entrapment.
 - 1.15.3.3. Work with hazardous substances.
 - 1.15.3.4. Underground work.
 - 1.15.3.5. Work on, over, under and adjacent to water.
 - 1.15.3.6. Workplaces where there are persons who require physical assistance to be moved.
- 1.15.4. Design and mark emergency exit routes to provide quick and unimpeded exit.
- 1.15.5. Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

1.16. Hazardous Products

- 1.16.1. Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- 1.16.2. Where use of hazardous and toxic products cannot be avoided:
 - 1.16.2.1. Notify Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as required.
 - 1.16.2.2. In conjunction with Departmental Representative, schedule to carry out Work during "off hours" when tenants have left the building.
 - 1.16.2.3. Provide adequate means of ventilation as required.

1.17. Unforeseen Hazards

- 1.17.1. Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the Work, immediately stop Work and notify the Departmental Representative verbally and in writing.

1.18. Posted Documents

- 1.18.1. Post legible versions of the following documents onsite:
 - 1.18.1.1. Health and Safety Plan.
 - 1.18.1.2. Sequence of Work.
 - 1.18.1.3. Emergency procedures.
 - 1.18.1.4. Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
 - 1.18.1.5. Notice of Project.
 - 1.18.1.6. Site plans.

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.18.1.7. Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the Site for review by employees and workers.
- 1.18.1.8. Workplace Hazardous Materials Information System (WHMIS) documents.
- 1.18.1.9. Material Safety Data Sheets (MSDS).
- 1.18.1.10. List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- 1.18.2. Post all Material Safety Data Sheets (MSDS) onsite, in a common area, visible to all workers and in locations accessible to tenants when Work of this Contract includes construction activities adjacent to occupied areas.
- 1.18.3. Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as accepted by the Departmental Representative.

1.19. Meetings

- 1.19.1. Attend health and safety preconstruction meeting and all subsequent meetings called by the Departmental Representative.
- 1.19.2. Ensure all site personnel attend a health and safety toolbox meeting at the beginning of each shift, which must include:
 - 1.19.2.1. Sign-in of all attendees.
 - 1.19.2.2. Planned Work activities and environmental considerations for that shift.
 - 1.19.2.3. Hazards associated with these Work activities, including environmental hazards (eg potential for hypothermia, heat exhaustion, heat stroke).
 - 1.19.2.4. Appropriate job-specific safe work procedures.
 - 1.19.2.5. Required personal protective equipment (PPE).
 - 1.19.2.6. Appropriate emergency procedures.
 - 1.19.2.7. Review recent accidents on Site, including near misses.
- 1.19.3. Retain records of all health and safety meetings onsite during Work, and retain as corporate records for a minimum of 7 years after Work is completed.

1.20. Correction of Non-Compliance

- 1.20.1. Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- 1.20.2. Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- 1.20.3. The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time.
- 1.20.4. Correct non-compliance.

1.21. Hazardous Occurrence Investigation and Reporting

- 1.21.1. Hazard includes:
 - 1.21.1.1. Any source of potential damage, harm or adverse effects on life, health, property or environment at work. It refers to any biological, chemical, ergonomic, physical, psychosocial and safety factor that is reasonably likely

HEALTH AND SAFETY FOR CONTAMINATED SITES

to cause harm or damage to humans, other organisms, or the environment in the absence of its control. Sometimes a hazard is referred to as being the actual harm or the health effect it caused rather than the hazard. For example the disease tuberculosis might be called a hazard by some but in general the tuberculosis-causing bacteria would be considered the “hazard” or “hazardous biological agent”. Exposure to tuberculosis would be the hazardous incident. For types of Hazards refer to Annex 3 of the Standard on Hazard Prevention Program.

1.21.2. Hazardous Occurrence includes:

1.21.2.1. An event occurring at a PWGSC managed building or worksite, or through the course of an employee's work that results in, or has the potential to result in, a fatality, injury, illness, exposure to a hazardous substance or property damage or an escapement of a hazardous material. For the purpose of investigating, recording and reporting hazardous occurrences, the following are included under this term: disabling injuries, minor injuries and near-misses.

1.21.3. Hazardous Occurrence Investigation and Reporting Procedures:

1.21.3.1. Includes information regarding the person involved and the basic circumstances surrounding the hazardous occurrence.

1.21.3.2. Provides a detailed and thorough description of the hazardous occurrence and the sequence of events.

1.21.3.3. Indicates corrective measures that have been taken since the occurrence.

1.21.3.4. Requires the appointment of a qualified investigator.

1.21.3.5. Provides recommendations for additional corrective measures, if required.

1.21.4. Fatal or Serious Accidents Procedures:

1.21.4.1. Call 911 to advise the police organization having jurisdiction to secure the scene and investigate the matter.

1.21.4.2. Advise the Departmental Representative of the fatality or serious accident within 1 hour.

1.21.4.3. No investigation will be conducted at the scene until the police service having jurisdiction has released the scene.

1.21.4.4. No person shall, unless authorized to do so, remove or in any way interfere with or disturb any wreckage, article or thing related to the incident except to the extent necessary to: save a life, prevent injury or relieve human suffering in the vicinity; maintain an essential public service; or prevent unnecessary damage to or loss of property.

1.22. Utility Clearance

1.22.1. The Contractor is solely responsible for utility clearance.

1.22.2. The Contractor will not rely upon Drawings or other information provided with utility locations.

1.23. Personal Protective Equipment Program

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.23.1. Submit Personal Protective Equipment (PPE) program to the Departmental Representative addressing:
- 1.23.1.1. Donning and doffing procedures.
 - 1.23.1.2. PPE selection based upon Site hazards.
 - 1.23.1.3. PPE use and limitations of equipment.
 - 1.23.1.4. Work mission duration, PPE maintenance and storage.
 - 1.23.1.5. PPE decontamination and disposal.
 - 1.23.1.6. PPE inspection procedures prior to, during, and after use.
 - 1.23.1.7. Evaluation of effectiveness of PPE program, and limitations during temperature extremes, and other appropriate medical considerations.
 - 1.23.1.8. Medical surveillance requirements for personnel assigned to work at Site.
 - 1.23.1.9. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.
 - 1.23.1.10. Site control measures employed at Site including site map, site work zones, use of 'buddy system', site communications including site security, alerting means for emergencies, standard operating procedures or safe work practices, and identification of nearest medical assistance.
 - 1.23.1.11. Decontamination procedures for both personnel and equipment.
 - 1.23.1.12. Emergency response requirements addressing: pre-emergency planning, personnel roles, lines of authority and communication, emergency recognition and prevention, safe distances and places of refuge, site security and control, evacuation routes and procedures, decontamination procedures not covered under decontamination section, emergency medical treatment and first aid, emergency alerting and response procedures, critique of response and follow-up, PPE and emergency equipment, site topography, layout, prevailing weather conditions, and procedures for reporting incidents to local, provincial, or federal agencies.
 - 1.23.1.13. Written respiratory protection program for project activities.
 - 1.23.1.14. Procedures dealing with heat and/or cold stress.
 - 1.23.1.15. Spill containment program if waste material is generated, excavated, stored, or managed onsite.

1.24. Offsite Contingency and Emergency Response Plan

- 1.24.1. Prior to commencing Work involving handling of hazardous materials, develop offsite Contingency and Emergency Response Plan.
- 1.24.2. Plan must provide immediate response to serious site occurrence such as explosion, fire, or migration of significant quantities of toxic or hazardous material from Site.

1.25. Personnel Health, Safety, and Hygiene



HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.25.1. Training: ensure personnel entering Site are trained in accordance with specified personnel training requirements. Training session must be completed by Health and Safety Officer.
- 1.25.2. Levels of Protection: establish levels of protection for each Work area based on planned activity and location of activity.
- 1.25.3. Personal Protective Equipment:
 - 1.25.3.1. Furnish site personnel with appropriate PPE as specified above. Ensure that safety equipment and protective clothing is kept clean and maintained.
- 1.25.4. Develop protective equipment usage procedures and ensure that procedures are strictly followed by site personnel; include following procedures as minimum:
 - 1.25.4.1. Ensure prescription eyeglasses worn are safety glasses and do not permit contact lenses onsite within work zones.
 - 1.25.4.2. Ensure footwear is steel-toed safety shoes or boots and is covered by rubber overshoes when entering or working in potentially contaminated work areas.
 - 1.25.4.3. Dispose of or decontaminate PPE worn onsite at end of each workday.
 - 1.25.4.4. Decontaminate reusable PPE before reissuing.
 - 1.25.4.5. Ensure site personnel have passed respirator fit test prior to entering potentially contaminated work areas.
 - 1.25.4.6. Ensure facial hair does not interfere with proper respirator fit.
- 1.25.5. Respiratory Protection:
 - 1.25.5.1. Provide site personnel with extensive training in usage and limitations of, and qualitative fit testing for, air purifying and supplied-air respirators in accordance with specified regulations.
 - 1.25.5.2. Develop, implement, and maintain respirator program.
 - 1.25.5.3. Monitor, evaluate, and provide respiratory protection for site personnel.
 - 1.25.5.4. Ensure levels of protection as listed have been chosen consistent with site-specific potential airborne hazards associated with major contaminants identified onsite.
 - 1.25.5.5. In absence of additional air monitoring information or substance identification, retain an industrial hygiene specialist to determine minimum levels of respiratory protection required.
 - 1.25.5.6. Immediately notify Departmental Representative when level of respiratory protection required increases.
 - 1.25.5.7. Ensure appropriate respiratory protection during Work activities. As minimum requirement, ensure that persons entering potentially contaminated work areas are supplied with and use appropriate respiratory protection.
- 1.25.6. Heat Stress/Cold Stress: implement heat stress or cold stress monitoring program as applicable and include in site-specific Health and Safety Plan.
- 1.25.7. Personnel Hygiene and Personnel Decontamination Procedures. Provide minimum as follows:
 - 1.25.7.1. Suitable containers for storage and disposal of used disposable PPE.
 - 1.25.7.2. Potable water and suitable sanitation facility.
- 1.25.8. Emergency and First-Aid Equipment:

HEALTH AND SAFETY FOR CONTAMINATED SITES

- 1.25.8.1. Locate and maintain emergency and first-aid equipment in appropriate location onsite including first-aid kit to accommodate number of site personnel; portable emergency eye wash; two 9 kg ABC type dry chemical fire extinguishers.
- 1.25.9. Site Communications:
 - 1.25.9.1. Post emergency numbers near site telephones.
 - 1.25.9.2. Ensure personnel use of "buddy" system and develop hand signal system appropriate for site activities.
 - 1.25.9.3. Provide employee alarm system to notify employees of site emergency situations or to stop Work activities if necessary.
 - 1.25.9.4. Furnish selected personnel with 2-way radios.
 - 1.25.9.5. Safety Meetings: conduct mandatory daily safety meetings for personnel, and additionally as required by special or Work-related conditions; include refresher training for existing equipment and protocols, review ongoing safety issues and protocols, and examine new site conditions as encountered. Hold additional safety meetings on as-needed basis.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

ENVIRONMENTAL PROCEDURES**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Environmental Protection Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit a plan detailing protection of the environment. Include:
- 1.3.1.1. Comprehensive overview of known or potential environmental issues to be addressed during Work.
 - 1.3.1.2. Identify requirements that plan complies with. Includes: permits, certificates, approvals, or any other form of authorizations; other federal, provincial, or municipal requirements; and in accordance with the Contract.
 - 1.3.1.3. Names and qualifications of persons responsible for ensuring adherence to Environmental Protection Plan.
 - 1.3.1.4. Names and qualifications of persons responsible for manifesting material to be removed from Site.
 - 1.3.1.5. Names and qualifications of persons responsible for training Site personnel.
 - 1.3.1.6. Description of Environmental Protection personnel training program.
 - 1.3.1.7. Work Area Plan showing proposed activity in each portion of areas, such as exclusion zone(s), decontamination zone(s) and clean zone(s), and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized Work areas.
 - 1.3.1.8. Drawings showing locations of proposed temporary excavations, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials onsite.
 - 1.3.1.9. Noise Control Plan identifying methods and procedures for preventing, monitoring, and controlling noise for compliance with: applicable permits, certificates, approvals, or any other form of authorizations; other federal, provincial, or municipal requirements; and in accordance with the Contract. Include thresholds and procedures if: noise does not comply with appropriate levels, or if there are public complaints.
 - 1.3.1.10. Vibration Control Plan identifying methods and procedures for preventing, monitoring, and controlling vibration for compliance with: applicable permits, certificates, approvals, or any other form of authorizations; other federal, provincial, or municipal requirements; and in accordance with the Contract. Include thresholds and procedures if: vibration does not comply

ENVIRONMENTAL PROCEDURES

- with appropriate levels, there are public complaints, or if onsite or offsite damage occurs
- 1.3.1.11. Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to prevent mud transported onto public roads by vehicles or runoff, and mitigation measures if mud is transported onto public roads by vehicles or runoff. Vehicles and vehicle traffic must comply with all federal, provincial, and municipal laws and regulations.
 - 1.3.1.12. Contamination Prevention Plan identifying hazardous, deleterious or regulated substances to be used onsite; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with federal, provincial, and municipal laws and regulations for storage and handling of these materials.
 - 1.3.1.13. Spill Control Plan including procedures, instructions, and reports to be used in event of spill of hazardous, deleterious or regulated substances. Identify locations and contents of spill kits.
 - 1.3.1.14. Communications Plan identifying emergency contact list and conditions for implementing emergency contact. Emergency contact to include: Contractor emergency response team including Superintendent; Departmental Representative and alternate, and other contractor(s) and individuals as instructed by the Departmental Representative; and federal, provincial, and municipal emergency contacts.
 - 1.3.1.15. Air Pollution Control Plan detailing provisions to assure that contaminants, dust, debris, materials, and trash, are contained onsite. Include procedures, in accordance with the Contract, if air pollution does not comply with appropriate levels, there are public complaints, or if onsite or offsite damage occurs.
 - 1.3.1.16. Non-Contaminated Material Disposal Plan identifying methods and locations for solid waste disposal including clearing waste. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of Landfill.
 - 1.3.1.17. Wastewater Management Plan identifying methods and procedures for management and discharge of Contaminated and Non-Contaminated Water including surface waters and wastewater which are directly derived from construction activities, such as clean-up water, dewatering of groundwater, and disinfection water. Include method of treatment and disposal.
 - 1.3.1.18. Wastewater Disposal Plan identifying methods and locations for solid waste disposal including clearing waste. Include name, location, provincial authorizations, and evidence of compliance with Municipal zoning and bylaws of Disposal Facility and/or copy of municipal permit to discharge to sewer system
 - 1.3.1.19. Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion

ENVIRONMENTAL PROCEDURES

and sediment control plan, federal, provincial, and municipal laws and regulations.

- 1.3.2. Pollution Control Procedures Modification: immediately when pollution control procedures are inadequate, as instructed by the Departmental Representative, Submit modified procedures to resolve problem.
- 1.3.3. Pollution Control Remediation: immediately when soil, sediment or water contaminated by Contractor's activities are inadequate as instructed by the Departmental Representative, Submit remediation procedures.
- 1.3.4. Dust and Particulate Control Procedures Modification: immediately when dust and particulate control measures are inadequate as instructed by the Departmental Representative, Submit modified procedures to resolve problem.

1.4. Fires

- 1.4.1. Fires and burning of rubbish onsite not permitted.

1.5. Cleaning

- 1.5.1. Maintain cleanliness of Work and surrounding Site to comply with federal, provincial, and municipal fire and safety laws, ordinances, codes, and regulations applicable to the performance of the Work.
- 1.5.2. Coordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.
- 1.5.3. Ensure cleanup of the Work areas each day after Final Completion of Work.

1.6. Site Clearing and Plant Protection

- 1.6.1. Minimize stripping of Topsoil and vegetation.

1.7. Vibration

- 1.7.1. Maintain acceptable vibration levels as to not damage structures adjacent to the Site as a result of the Work.

1.8. Maintenance of Public Roads

- 1.8.1. Prevent tracking or spilling of debris or material onto public roads.
- 1.8.2. Immediately sweep or scrape up debris or material on public roads.
- 1.8.3. Clean public roads within a 200 m radius of the Site entrance at least once per shift.

1.9. Pollution Control

- 1.9.1. Pollution includes spills or other releases from Contractor's activities that could potentially contaminate soil, sediment, water, and atmosphere from discharge of hazardous, deleterious or regulated substances, including from equipment and material handling.
- 1.9.2. Provide sequence, methods and means, and facilities to prevent spills or releases.
 - 1.9.2.1. Maintain temporary erosion and pollution control features.
 - 1.9.2.2. Do not store fuel onsite other than tanks forming part of the equipment.

ENVIRONMENTAL PROCEDURES

- 1.9.2.3. Control emissions from equipment and plant to meet applicable authorities' emission requirements.
- 1.9.2.4. Contractor to regularly inspect all machinery on the Site to ensure it is in good repair and free of leaks.
- 1.9.3. Inadequate procedures:
 - 1.9.3.1. Stop relevant Work if procedures are inadequate to prevent spills or other releases, or when monitoring indicates that release equals or exceeds regulated or levels in accordance with the Contract.
 - 1.9.3.2. Submit procedures proposed to resolve problem.
 - 1.9.3.3. Make necessary changes to operations prior to resuming excavation, handling, processing, or other Work that can cause spills or other releases.
 - 1.9.3.4. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate to prevent spills or other releases, or when monitoring indicates that release equals or exceeds regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.
- 1.9.4. Be prepared to intercept, cleanup, and dispose of spills or other releases that can occur whether on land or water.
- 1.9.5. Spill kits and containment are to be maintained onsite and ready for deployment in the event of spills or other releases.
 - 1.9.5.1. Spill kits are to include sufficient quantities of absorbent material, containers, booms, shovels and other tools, and personal protective equipment.
 - 1.9.5.2. Spill response materials must be compatible with type of equipment being used or type of material being handled.
 - 1.9.5.3. Spill kits are to be in close proximity to machinery.
 - 1.9.5.4. During the Work there are to be trained and qualified personnel available that are ready to deploy spill kits when necessary.
- 1.9.6. Take immediate action using available resources to contain and mitigate effects on environment and persons from spill or release.
- 1.9.7. Promptly report spills and releases potentially causing damage to environment to:
 - 1.9.7.1. Authority having jurisdiction or interest in spill or other release including conservation authority, water supply authorities, drainage authority, road authority, and fire department.
 - 1.9.7.2. Contractor emergency response team including Superintendent
 - 1.9.7.3. Departmental Representative and other contractor(s) and individuals as instructed by the Departmental Representative.
- 1.9.8. Departmental Representative can collect samples for chemical analyses prior to, during, and upon Final Completion of Work to monitor potential pollution caused by Contractor's activities. Assist Departmental Representative in collection of samples.
- 1.9.9. Remediation of soil, sediment or water contaminated by Contractor's activities.
 - 1.9.9.1. Remediate all soil, sediment or water contaminated by Contractor's activities associated with the Work onsite and offsite.

ENVIRONMENTAL PROCEDURES

- 1.9.9.2. Remediation includes excavation, pumping, testing, transport, treatment and disposal as appropriate for the type of contamination incurred, and at a minimum in accordance with the Contract.
- 1.9.9.3. Submit procedures for remediating soil, sediment or water contaminated by Contractor's activities.
- 1.9.9.4. Remediate as instructed by the Departmental Representative.
- 1.9.9.5. Contractor is responsible for any additional investigation, testing, and assessments required as acceptable to the Departmental Representative.

1.10. Dust and Particulate Control

- 1.10.1. Execute Work by methods to minimize raising dust from construction operations.
- 1.10.2. Prevent fugitive dust from the Site from interfering with onsite and offsite uses.
- 1.10.3. Prevent dust from spreading to neighbouring properties.
- 1.10.4. Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads, excavations, and stockpiles.
- 1.10.5. Implement and maintain dust and particulate control measures immediately as instructed by the Departmental Representative during Work and in accordance with regulations and in accordance with the Contract.
- 1.10.6. Provide positive means to prevent airborne dust from dispersing into atmosphere. Use fresh (non-saline) water for dust and particulate control.
- 1.10.7. As minimum, use appropriate covers on vehicles hauling fine or dusty material. Use watertight vehicles to haul wet materials.
- 1.10.8. Inadequate procedures:
 - 1.10.8.1. Stop relevant Work if dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, or when monitoring indicates that dust or particulate levels equal or exceed regulated or levels in accordance with the Contract.
 - 1.10.8.2. Submit procedures proposed to resolve problem.
 - 1.10.8.3. Make necessary changes to operations prior to resuming excavation, handling, processing, or other Work that can cause release of dusts or particulates.
 - 1.10.8.4. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate to prevent release of dusts or particulates, or when monitoring indicates that dust or particulate levels equal or exceed regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.

1.11. Sewage Wastewater

- 1.11.1. Store Sewage Wastewater from toilet facilities with wastewater from handbasins, and/or showers, for ultimate disposal.

ENVIRONMENTAL PROCEDURES

- 1.11.2. Provide, operate, and maintain Sewage Wastewater storage tanks to store Sewage Wastewater.
- 1.11.3. Transport and dispose of Sewage Wastewater at a Disposal Facility, or discharge to municipal sanitary sewer system in compliance with Municipal requirements, as accepted by Departmental Representative.
- 1.11.4. Discharges: comply with applicable discharge limitations and requirements; do not discharge Sewage Wastewater to Site sewer systems that do not conform to or are in violation of such limitations or requirements; and obtain approval prior to discharge of Sewage Wastewater.

1.12. Wastewater Control

- 1.12.1. Dewater various parts of Work including, without limitation, excavations, and Work areas.
- 1.12.2. Employ construction methods, procedures, and precautions that ensure Work, including excavations, are stable, free from disturbance, and dry.
- 1.12.3. Direct surface waters that have not contacted potentially Contaminated Materials to surface drainage systems.
- 1.12.4. Control surface drainage including ensuring that gutters are kept open, wastewater is not allowed across or over pavements or sidewalks except through accepted pipes or properly constructed troughs, and runoff from unstabilized areas is intercepted and diverted to suitable outlet.

1.13. Non-Contaminated Water Disposal

- 1.13.1. Dispose of Non-Contaminated Water in manner not injurious to public health or safety, to property, or to any part of Work completed or under construction.
- 1.13.2. Control disposal or runoff of Non-Contaminated Water containing suspended materials or other harmful substances in accordance with local authority requirements.
- 1.13.3. Ensure pumped Non-Contaminated Water into waterways, sewer or drainage systems is free of suspended materials. Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, watercourses or drainage areas.
- 1.13.4. Obtain permits to discharge Non-Contaminated Water to environment or Municipal sewers.
- 1.13.5. Do not discharge water which may have come in contact with potentially Contaminated Material or otherwise be Contaminated directly offsite to the environment or to municipal sewers.

1.14. Erosion and Sediment Control

- 1.14.1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other Work areas. Prevent erosion and sedimentation.
- 1.14.2. Minimize amount of bare soil or sediment exposed at one time. Stabilize disturbed soil or sediment as quickly as practical. Strip vegetation, regrade, or

ENVIRONMENTAL PROCEDURES

otherwise develop to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems, and water courses, and repair damage caused by soil erosion and sedimentation as instructed by the Departmental Representative.

- 1.14.3. Provide and maintain temporary erosion and sediment control measures.
 - 1.14.3.1. Temporary erosion and sediment control measures are required to prevent erosion and migration of silt, mud, sediment, and other debris offsite or to other areas of Site where damage might result, or that might otherwise be required by laws and regulations.
 - 1.14.3.2. Temporary erosion and sediment control measures include: silt fences, hay or straw bales, ditches, geotextiles, drains, berms, terracing, riprap, temporary drainage piping, vegetative cover, dikes, mulching, sediment traps, detention and retention basins, grading, planting, retaining walls, culverts, pipes, guardrails, temporary roads, and other measures appropriate to specific condition.
 - 1.14.3.3. Temporary improvements must remain in place and in operation as necessary or until otherwise instructed by the Departmental Representative
 - 1.14.3.4. Place silt fences and/or hay or straw bales in ditches to prevent sediment from escaping from ditch terminations.
 - 1.14.3.5. Do not construct bale barriers and silt fence in flowing streams or in swales.
 - 1.14.3.6. Check erosion and sediment control measures weekly after each rainfall; during prolonged rainfall check daily.
 - 1.14.3.7. Bales and/or silt fence can be removed at beginning of Working Day, replace at end of Working Day.
 - 1.14.3.8. Repair damaged bales, end runs, and undercutting beneath bales.
 - 1.14.3.9. Unless instructed by the Departmental Representative, remove temporary erosion and sediment control devices upon Final Completion of Work. Temporary erosion and sediment control devices once removed become property of Contractor.
- 1.14.4. Whenever sedimentation is caused by stripping vegetation, regrading, or other development, remove it from adjoining surfaces, drainage systems, and watercourses, and repair damage as quickly as possible.
- 1.14.5. Construct fill areas to prevent erosion.
- 1.14.6. Do not disturb existing embankments or embankment protection in accordance with the Contract.
- 1.14.7. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- 1.14.8. If soil, sediment and debris from Site accumulate in low areas, storm sewers, roadways, gutters, ditches, or other areas where it is undesirable, remove accumulation and restore area to original condition, as instructed by the Departmental Representative.

1.15. Noncompliance

ENVIRONMENTAL PROCEDURES

- 1.15.1. Departmental Representative will inform Contractor in writing of observed noncompliance with federal, provincial or municipal environmental laws, regulations, permits, or other environmental procedure violations.
- 1.15.2. After receipt of notice, inform the Departmental Representative of the proposed corrective action. Corrective action will be subject to acceptance of Departmental Representative.
 - 1.15.2.1. Do not take action until after receipt of written acceptance.
- 1.15.3. Departmental Representative will issue stop order of Work until satisfactory corrective action has been taken.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.



3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Not Used.

1.4. Laws, Regulations, Permits

- 1.4.1. Generally, provincial and municipal laws, regulations, bylaws and other requirements do not apply on federal lands, activities or undertakings. Soil and other materials that are removed from federal lands may become subject to provincial or municipal laws and regulations.
- 1.4.2. Provincial or municipal standards may be used in relation to federal lands only as guidelines for the purpose of establishing remediation goals and objectives. The term "standards" is used in this part in order to maintain consistency in terminology throughout this document, and does not imply that standards contained in provincial or municipal laws and regulations apply on Federal lands, activities or undertakings.
- 1.4.3. Comply with certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial or municipal authorities to complete the Work that have already been obtained.
- 1.4.4. Obtain and pay for certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial or municipal authorities to complete the Work that have not already been obtained or that are required to be amended.
- 1.4.5. Provide applicable authorities with plans and information required for issue of acceptance certificates.
- 1.4.6. Furnish inspection certificates in evidence that the Work installed conforms with the requirements of the authority having jurisdiction.

1.5. Codes, Bylaws, Standards

- 1.5.1. Meet or exceed requirements of Contract, standards, and codes applicable to the performance of the Work and referenced documents.
- 1.5.2. In any case of conflict or discrepancy, the most stringent requirements will apply.
- 1.5.3. Certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial or municipal authorities to complete the Work: see 01 11 00.

REGULATORY REQUIREMENTS

1.5.4. Comply with all attachments, references, and reports relevant to Work, including environmental protection.

1.6. Smoking Environment

1.6.1. Smoking on the Site is not permitted.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION



1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Not Used.

1.4. Quality of Work

1.4.1. Ensure that quality workmanship is performed through use of skilled tradesmen, under supervision of qualified journeyman, or Qualified Professional.

1.4.2. Meet or exceed standards set out in the National Building Code of Canada as applicable for workmanship, erection methods and procedures.

1.4.3. In cases of dispute, perform Work to standard or quality in accordance with any decisions by the Departmental Representative.

1.4.4. Follow Departmental Representative's instructions to meet the Quality of Work in accordance with the Contract at no increase to the Contract Amount and no increase to Extension of Time for completion of the Work. Quality of Work includes addressing comments on Submittals, modifying environmental procedures, and preventing or remediating contaminated material spills.

1.5. Quality Management

1.5.1. Be responsible for all Quality Assurance and Quality Control during the performance of the Work.

1.5.2. Quality Assurance and Quality Control includes monitoring, inspecting, testing, documenting and reporting the means, methods, materials, workmanship, processes, and products of all aspects of the Work, including design, construction, and management as necessary to ensure conformance with the Contract.

1.5.3. Assist Departmental Representative in quality audit inspections and submit all indicated information within 5 Working Days of collection or as instructed.

1.6. Inspection

1.6.1. Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Site, allow access to such Work whenever it is in progress. Work at locations other than Site includes offsite Transportation (eg transfer stations), and Disposal Facilities.

- 1.6.2. Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Site.
- 1.6.3. If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- 1.6.4. Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.7. Independent Inspection Agencies

- 1.7.1. Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- 1.7.2. Provide equipment required for executing inspection and testing by appointed agencies.
- 1.7.3. Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- 1.7.4. If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.8. Access to Work

- 1.8.1. Allow inspection/testing agencies access to Work.
- 1.8.2. Co-operate to provide reasonable facilities for such access.

1.9. Procedures

- 1.9.1. Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- 1.9.2. Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- 1.9.3. Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.10. Rejected Work

- 1.10.1. Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

- 1.10.2. Make good other Contractor's work damaged by such removals or replacements promptly.
- 1.10.3. If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, PWGSC will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.11. Reports

- 1.11.1. Submit 2 copies of inspection and test reports to [Departmental Representative.
- 1.11.2. Provide copies to subcontractor of work being inspected or tested.

1.12. Tests and Mix Designs

- 1.12.1. Furnish test results as requested.
- 1.12.2. Test results must be signed by Qualified Professional.
- 1.12.3. The Departmental Representative may require, and pay for, additional inspection and testing services not included above.

2. PART 2 - PRODUCTS

2.1. Not Used

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

- 3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Site Layout: within 10 Working Days after Contract award and prior to mobilization to Site, submit Site Layout drawings showing existing conditions and facilities, construction facilities and temporary controls provided by Contractor. Include:

1.3.1.1. Equipment and personnel decontamination areas.

1.3.1.2. Means of ingress, egress and temporary traffic control.

1.3.1.3. Equipment and material staging areas.

1.3.1.4. Stockpile areas and construction details, including base preparation and water control features.

1.3.1.5. Exclusion areas, contaminant handling areas, and other areas identified in Contractor's site-specific Health and Safety Plan and Environmental Protection Plan.

1.3.1.6. Location of all temporary facilities including: Contaminated Water Treatment Plant, truck wash and decontamination units, office trailers, parking, storage, environmental monitoring stations, above ground and underground utilities, and temporary facilities and roads.

1.3.2. Signs: at least 5 Working Days prior to posting, Submit any signs viewable by public.

1.4. Utilities

1.4.1. Power is not available at existing Site and must be supplied at the Contractor's expense.

1.4.2. Water supply is not available at existing Site and must be supplied at the Contractor's expense.

1.5. Fire Protection

1.5.1. Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

1.6. Access and Delivery

1.6.1. Only the designated entrance in accordance with the Contract can be used for access to Site.

1.6.1.1. Maintain for duration of Contract.

1.6.1.2. Make good damage resulting from Contractor's use.

CONSTRUCTION FACILITIES

- 1.6.2. Use of the Site will be granted to the Contractor through the Departmental Representative.

1.7. Installation and Removal

- 1.7.1. Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- 1.7.2. Identify areas which have to be gravelled to prevent tracking of mud.
- 1.7.3. Indicate use of supplemental or other staging area.
- 1.7.4. Provide construction facilities in order to execute work expeditiously.
- 1.7.5. Provide temporary utilities in order to execute Work expeditiously.
- 1.7.6. Remove from Site all such Work after use.

1.8. Site Storage/Loading

- 1.8.1. Confine work and operations of employees in accordance with the Contract. Do not unreasonably encumber premises with products.
- 1.8.2. Storage space must be limited to the Site.
- 1.8.3. Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.9. Construction Parking

- 1.9.1. Parking of private vehicles will not be permitted on Site.
- 1.9.2. Provide and maintain adequate access to project site.

1.10. Security

- 1.10.1. Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.
- 1.10.2. Control access to Site and maintain a log of all personnel onsite. No non-Work visitors allowed without prior written consent of Departmental Representative

1.11. Equipment, Tools and Materials Storage

- 1.11.1. Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- 1.11.2. Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.12. Sanitary Facilities

- 1.12.1. Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- 1.12.2. Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.13. Construction Signage



CONSTRUCTION FACILITIES

- 1.13.1. Provide and erect project signs within 10 Working Days of mobilization in a location designated by Departmental Representative.
- 1.13.2. Provide project identification site sign comprising foundation, framing, and one 1200 x 2400 mm signboard as detailed and as described below.
 - 1.13.2.1. Foundations: 15 MPa concrete to CSA-A23.1 minimum 200 mm x 900 mm deep.
 - 1.13.2.2. Framework and battens: SPF, pressure treated minimum 89 x 89 mm.
 - 1.13.2.3. Signboard: 19 mm Medium Density Overlaid Douglas Fir Plywood to CSA O121.
 - 1.13.2.4. Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.
 - 1.13.2.5. Fasteners: hot-dip galvanized steel nails and carriage bolts.
 - 1.13.2.6. Vinyl sign face: printed project identification, self adhesive, vinyl film overlay, supplied by Departmental Representative.
- 1.13.3. Locate project identification sign as directed by Departmental Representative and construct as follows:
 - 1.13.3.1. Build concrete foundation, erect framework, and attach signboard to framing.
 - 1.13.3.2. Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.
 - 1.13.3.3. Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.
- 1.13.4. Direct requests for approval to erect Contractor signboard to Departmental Representative. For consideration general appearance of Contractor signboard must conform to project identification site sign. Wording in both official languages.
- 1.13.5. Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- 1.13.6. Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.14. Protection and Maintenance of Traffic

- 1.14.1. Provide access and temporary relocated roads as necessary to maintain traffic.
- 1.14.2. Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- 1.14.3. Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- 1.14.4. Protect travelling public from damage to person and property.
- 1.14.5. Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

CONSTRUCTION FACILITIES

- 1.14.6. Verify adequacy of existing roads and allowable load limit on these roads.
Contractor: responsible for repair of damage to roads caused by construction operations.
- 1.14.7. Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- 1.14.8. Dust control: adequate to ensure safe operation at all times.
- 1.14.9. Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- 1.14.10. Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- 1.14.11. Provide snow removal during period of Work.

1.15. Truck Wash and Decontamination Units

- 1.15.1. Supply, install and operate the truck wash, including the installation of a water supply.
 - 1.15.1.1. No vehicles which have come in contact with Contaminated Material must leave the Site without passing through the truck wash.
 - 1.15.1.2. The truck wash must provide, at a minimum, the ability to wash truck tires and load boxes to a minimum height of 1.7 m.
 - 1.15.1.3. Truck wash must have a solid separation tank and all solids collected must be classified as Contaminated Material and disposed of at a Disposal Facility.
 - 1.15.1.4. Recycle or treated as Contaminated Water water used in the truck wash.
- 1.15.2. Supply personnel decontamination units (minimum of 2) for use by hazardous material, testing and inspection personnel working in areas of hazardous materials and for general clean-up of personal protective equipment to remove Contaminated Material.
 - 1.15.2.1. The personnel decontamination units to be available to Departmental Representative and their consultants.
 - 1.15.2.2. The personnel decontamination units are subject to acceptance of Departmental Representative.
- 1.15.3. The truck wash and personnel decontamination units must be maintained in good working order during onsite Work.
- 1.15.4. The truck wash and personnel decontamination units must be removed from the Site during Site Decommissioning.

1.16. Clean-Up

- 1.16.1. Remove construction debris, waste materials, packaging material from work site daily.
- 1.16.2. Clean dirt or mud tracked onto paved or surfaced roadways.
- 1.16.3. Store materials resulting from demolition activities that are salvageable.
- 1.16.4. Stack stored new or salvaged material not in construction facilities.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION



PRODUCT REQUIREMENTS**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Product Data: at least 5 Working Days prior to use, Submit data on products to be used in Work. Include:

1.3.1.1. Manufacturers' catalogue sheets, MSDS sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products or any other information in accordance with the Contract.

1.3.1.2. Supplement standard information to provide details applicable to project.

1.3.1.3. Cross-reference product data information to applicable portions of Contract.

1.3.2. Substitution: at least 5 Working Days prior to use and after Contract award, Submit proposals for substituting products, if required. Include statements of respective costs of items originally in accordance with the Contract and the proposed substitution.

1.3.3. Quality of Work: at least 5 Working Days prior to Work, Submit alternate means to meet or correct quality of work, if required.

1.4. Products, Material and Equipment

1.4.1. Use new products, material and equipment in accordance with the Contract. The term "products" is referred to throughout the specifications.

1.4.2. Use products of one manufacturer for material and equipment of the same type or classification in accordance with the Contract.

1.4.3. Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation method in accordance with the Contract.

1.4.4. Notify Departmental Representative in writing of any conflict between Contract and manufacturer's instructions. Departmental Representative will instruct which document is to be followed.

1.4.5. Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.

1.4.6. Prevent damage, adulteration and soiling of products during delivery, handling and storage. Immediately remove rejected products from Site.

1.4.7. Store products in accordance with Suppliers' instructions.

PRODUCT REQUIREMENTS**1.5. Quality of Products**

- 1.5.1. Products, materials and equipment (referred to as products) incorporated into Work must be new, not damaged or defective, and of the best quality (compatible with the specifications) for the purpose intended. As instructed by the Departmental Representative, furnish evidence as to type, source, and quality of the products provided.
- 1.5.2. Defective products will be rejected regardless of previous inspections.
 - 1.5.2.1. Inspection does not relieve responsibility, but is precaution against oversight or error.
 - 1.5.2.2. Remove and replace defective products.
- 1.5.3. Retain purchase orders, invoices and other documents to prove that all products utilized in the Work meet the requirements of the Contract. Produce documents as instructed by the Departmental Representative.
- 1.5.4. Should any dispute arise as to quality or fitness of products, the decision rests strictly with the Departmental Representative in accordance with the Contract.

1.6. Availability of Products

- 1.6.1. Immediately upon signing the Contract, review product delivery requirements and anticipate foreseeable supply delays for any items.
- 1.6.2. If delays in supply of products are foreseeable, Notify Departmental Representative of such in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of the Work.
- 1.6.3. In event of failure to Notify Departmental Representative at the start of Work and should it subsequently appear that the Work may be delayed for such reason, the Departmental Representative reserves the right to substitute more readily available products of similar character.

1.7. Contractor's Options for Selection of Products for Tendering

- 1.7.1. Products specified by "Prescriptive" specifications: select any product meeting or exceeding requirements in accordance with the Contract.
- 1.7.2. Products specified by performance and referenced standard: select any product meeting or exceeding the referenced standard.
- 1.7.3. Products specified to meet particular design requirements or to match existing materials: use only material in accordance with the Contract.
- 1.7.4. When products are specified by a referenced standard or by performance specifications, as instructed by the Departmental Representative obtain from manufacturer and independent laboratory report showing that the product meets or exceeds the requirements in accordance with the Contract.

1.8. Storage, Handling and Protection

- 1.8.1. Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions.
- 1.8.2. Store products subject to damage from weather in weatherproof enclosures.

PRODUCT REQUIREMENTS

- 1.8.3. Remove and replace damaged products as instructed by the Departmental Representative.

1.9. Transportation

- 1.9.1. Pay costs of transportation of products required in performance of Work.
- 1.9.2. Transport products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- 1.9.3. Transport products subject to damage from weather in weatherproof enclosures.
- 1.9.4. Transport in an efficient manner that does not cause delays to the Work schedule.

1.10. Quality of Work

- 1.10.1. Ensure quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately Notify Departmental Representative if required Work is such as to make it impractical to produce results in accordance with the Contract. Provide alternate means to meet or correct quality of work, as accepted by the Departmental Representative.
- 1.10.2. Do not employ anyone unskilled in their required duties.
- 1.10.3. Perform Work to standard of fitness of Quality of Work in accordance with any decision by the Departmental Representative.

PRODUCT REQUIREMENTS

1.11. Coordination

- 1.11.1. Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

1.12. Remedial Work

- 1.12.1. Perform remedial Work required to repair or replace parts or portions of Work as instructed by the Departmental Representative as defective or unacceptable. Coordinate adjacent affected Work as required.
- 1.12.2. Perform remedial Work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

2. PART 2 - PRODUCTS

2.1. Asbestos Containing Materials Prohibition

- 2.1.1. Any material containing any degree of asbestos is banned from use in any and all sites, designs and projects.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION



EXAMINATION AND PREPARATION**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Preconstruction Condition Survey: within 10 Working Days prior to mobilization to Site, Submit Preconstruction Condition Survey of existing structures, utilities and surface features.

1.4. Qualifications of Surveyor

1.4.1. A Land Surveyor, acceptable to Departmental Representative.

1.5. Survey Reference Points

- 1.5.1. Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- 1.5.2. Make no changes or relocations without prior written notice to Departmental Representative.
- 1.5.3. Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- 1.5.4. Require surveyor to replace control points in accordance with original survey control.

1.6. Survey Requirements

- 1.6.1. Establish permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- 1.6.2. Establish lines and levels, locate and lay out, by instrumentation.
- 1.6.3. Stake for grading, fill.

1.7. Existing Services

- 1.7.1. Size, depth and location of existing utilities and structures as specified are for guidance only. Completeness and accuracy are not guaranteed.
- 1.7.2. Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative. All utilities entering Site must be confirmed prior to subsurface disturbance (ie do not rely on as-built documents). As appropriate, confirm locations of buried utilities by independent utility locator and using hand test excavations or hydrovac methods
- 1.7.3. Remove abandoned service lines within 2m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

EXAMINATION AND PREPARATION

- 1.7.4. Maintain and protect from damage all utilities and structures encountered, unless Work involves temporarily breaking, rerouting, or connecting into existing utilities.
- 1.7.5. Where Work involves temporarily breaking, rerouting, or connecting into existing utilities, obtain permission from utility companies of intended interruption of services, and carry out Work at times determined by the authorities having jurisdiction.
- 1.7.6. Submit schedule to and obtain approval for any shutdown or closure of active service. Adhere to schedule accepted by Departmental Representative and provide notice to affected parties.
- 1.7.7. Provide temporary services as required to maintain critical building and tenant systems.
- 1.7.8. Where unknown utilities are encountered, immediately verbally notify Departmental Representative and confirm findings in writing.

1.8. Examination

- 1.8.1. Examine Site and Contract and be familiar and conversant with existing conditions likely to affect Work, including Contaminated Material.

1.9. Records

- 1.9.1. Land Surveyor to prepare postconstruction as-built drawings of all utilities, including existing, reinstated, rerouted, and abandoned.
- 1.9.2. Maintain a complete, accurate log of control and survey work as it progresses.
- 1.9.3. Preconstruction Condition Survey:
 - 1.9.3.1. Conduct Preconstruction Condition Survey of existing structures and other features which can be affected by Work, both onsite and offsite. Includes: buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, roads, survey bench marks, monuments and other features.
 - 1.9.3.2. Survey to include detailed photographic documentation of any preconstruction damage, and measurements where appropriate, including crack width and length, angles out of true. Record written notices to owners of features that have existing damage.
 - 1.9.3.3. Record written notices of offsite owners which refused entry to conduct Preconstruction Condition Survey.

2. PART 2 - PRODUCTS**2.1. Not Used**

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

EXAMINATION AND PREPARATION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

WASTE MANAGEMENT AND DISPOSAL**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Waste Reduction Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit a plan detailing material separation. Include:

1.3.1.1. List of materials to be reused or recycled.

1.3.1.2. Sequence, methods and means to dispose Waste offsite. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of Disposal Facilities.

1.3.2. Landfill Receipts: within 5 Working Days of transport offsite, Submit receiving facility receipts indicating quantity and type of material delivered to Landfill.

1.3.3. Recycling Receipts: within 5 Working Days of transport offsite, Submit receiving facility receipts indicating quantity and type of materials sent for recycling.

1.4. Waste Disposal

1.4.1. Waste and Non-Contaminated Material Disposal:

1.4.1.1. Divert materials other than soil which can be practically reused or recycled from Landfill as approved by Departmental Representative.

1.4.1.2. Dispose all other Waste in Landfill.

1.4.1.3. Dispose all soil in Landfill.

1.4.2. Landfill must:

3.1.1.1. Be an existing offsite facility located in Canada.

3.1.1.2. Conform with the BC Ministry of Environment *Landfill Criteria For Municipal Solid Waste*.

1.4.2.1. Hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a province or territory for the disposal of Non-Contaminated Material.

1.4.3. Dispose material as soon as practical and within 100 Working Days of leaving Site unless otherwise accepted by Departmental Representative.

1.4.4. Material sent to a Landfill must be permanently stored at that facility.

1.4.5. If proposed Landfill is not acceptable to Departmental Representative, identify an alternate Landfill that is acceptable.

1.4.6. Submit recycling receipts or landfill receipts for all material disposed offsite.



WASTE MANAGEMENT AND DISPOSAL**1.5. Materials Source Separation**

- 1.5.1. Provide separate containers for reusable and/or recyclable materials of the following:
 - 1.5.1.1. Metals.
 - 1.5.1.2. Wood.
 - 1.5.1.3. Plastics.
 - 1.5.1.4. Paper.
 - 1.5.1.5. Glass.
 - 1.5.1.6. Other materials in accordance with the Contract.
- 1.5.2. Implement Materials Source Separation Program for waste generated on project in compliance with methods accepted by the Departmental Representative.
- 1.5.3. Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- 1.5.4. Locate separated materials in areas which minimize material damage.

1.6. Diversion of Materials

- 1.6.1. Create a list of materials to be separated from the general waste stream and stockpiled in separate containers, as accepted by the Departmental Representative and consistent with applicable fire regulations.
 - 1.6.1.1. Mark containers.
 - 1.6.1.2. Provide instruction on disposal practices.

1.7. Storage, Handling and Application

- 1.7.1. Do Work in compliance with Waste Reduction Plan.
- 1.7.2. Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes, and dispose at Landfill weekly.
- 1.7.3. Materials in separated condition: collect, handle, store onsite, and transport offsite to an authorized recycling facility accepted by the Departmental Representative, and remove from Site weekly.
- 1.7.4. Materials must be immediately separated into specified categories for reuse or recycling.
- 1.7.5. Unless otherwise in accordance with the Contract, materials for removal become the Contractor's property.
- 1.7.6. Onsite sale of salvaged/recyclable material is not permitted.
- 1.7.7. Submit as instructed by the Departmental Representative receiving facility weigh scale receipts indicating quantity of material delivered to Landfill.
- 1.7.8. Submit as instructed by the Departmental Representative receiving facility weigh scale receipts indicating quantity and type of materials sent for recycling.

2. PART 2 - PRODUCTS**2.1. Not Used**

- 2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. SUBMITTALS

- 1.1.1. Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- 1.1.2. Furnish evidence, if requested, for type, source and quality of products provided.
- 1.1.3. Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- 1.1.4. Pay costs of transportation.

1.2. AS-BUILTS AND SAMPLES

- 1.2.1. Maintain at site one record copy of:
 - 1.1.1.1 Contract Drawings.
 - 1.1.1.2 Specifications.
 - 1.1.1.3 Addenda.
 - 1.1.1.4 Change Orders and other modifications to Contract.
 - 1.1.1.5 Reviewed shop drawings, product data, and samples.
 - 1.1.1.6 Field test records.
 - 1.1.1.7 Inspection certificates.
 - 1.1.1.8 Manufacturer's certificates.
- 1.2.2. Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- 1.2.3. Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- 1.2.4. Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- 1.2.5. Keep record documents and samples available for inspection the PWGSC representative.

1.3. FINAL SURVEY

- 1.3.1. Submit final site survey showing extent of excavation, grade, and the location of any utility line replacement to show the work is in conformance with Contract Documents.

4. PART 2 - PRODUCTS

4.1. Not Used

4.1.1. Not Used.

5. PART 3 - EXECUTION

5.1. Not Used

5.1.1. Not Used.

END OF SECTION

SOIL REMEDIATION GENERAL CONSTRUCTION**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Permits: at least 10 Working Days prior to mobilization to Site, Submit copies of all permits, certificates, approvals, or any other form of authorizations and all reporting required.

1.3.2. Work Sequencing: within 10 Working Days of Contract award and prior to mobilization to Site, Submit Work sequencing description and schedule.

Includes:

1.3.2.1. Work Sequencing description must describe sequence, methods and means to perform each major task.

1.3.2.2. Work Sequencing schedule must show on a bar chart, start, end and dependencies of each major task and also indicates Work to be performed in sequence and in parallel.

1.3.2.3. Major tasks include: pre-mobilization Work, Mobilization, Site Preparation, installation of temporary facilities, temporary support, excavation, dewatering, backfilling, offsite transportation, offsite disposal, Site Restoration and Demobilization.

1.3.3. Import Fill Material Quality: at least 5 Working Days prior to bringing material onsite, Submit documentation signed and sealed by a Qualified Professional verifying that material is acceptable for import and intended use. Include:

1.3.3.1. Grain-size distribution information.

1.3.3.2. Chemical analyses for Potential Contaminants of Concern, including metals.

1.3.3.3. Testing to be performed by a Qualified Professional at sufficient frequency to characterize all material imported to Site. Test using appropriate guidelines and practices.

1.3.4. Import Fill Material Samples: at least 10 Working Days prior to bringing material to Site, Submit samples of imported fill.

1.3.4.1. Submit samples representative of all material to be imported. Sample frequency subject to acceptance by Departmental Representative.

1.3.4.2. Submit sufficient sample size to allow geotechnical and environmental quality testing.

SOIL REMEDIATION GENERAL CONSTRUCTION**1.4. Onsite Access Roads**

- 1.4.1. Maintain onsite access roads as follows:
 - 1.4.1.1. Obtain permission to use existing onsite access roads.
 - 1.4.1.2. Maintain and clean roads for duration of Work.
 - 1.4.1.3. Control mud and dust from road.
 - 1.4.1.4. Repair damage incurred from use of roads.
 - 1.4.1.5. Provide photographic documentation of roads used by construction vehicles before, during and after Work.
 - 1.4.1.6. The Departmental Representative can instruct cleaning of the onsite access roads.

2. PART 2 - PRODUCTS**2.1. Materials**

- 2.1.1. Erosion and sediment control materials to meet the following minimum requirements:
 - 2.1.1.1. Hay or Straw Bale: wire bound or string tied; securely anchored by at least 2 stakes or rebars driven through bale 300 mm to 450 mm into ground; chinked (filled by wedging) with hay or straw to prevent water from escaping between bales; and entrenched minimum of 100 mm into ground.
- 2.1.2. Gradations to be within limits specified when tested to ASTM C117-13 (*Standard Test Method for Materials Finer than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing*) and ASTM C136-06 (*Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates*). Sieve sizes to SCC CAN/CGSB-8.1-88 (*Sieves, Testing, Woven Wire, Inch Series*) and CAN/CGSB-8.2-M88 (*Sieves, Testing, Woven Wire, Metric Series*).
- 2.1.3. Import fill materials to meet the following minimum requirements
 - 2.1.3.1. Import fill materials must be granular aggregate composed of inert, clean, tough, durable particles of crushed rock, gravel and sand capable of withstanding the deleterious effects of exposure to water, freeze-thaw, handling, spreading and compacting. The aggregate particles must be uniform in quality and free from clay lumps, wood and free from an excess of flat or elongated pieces.
 - 2.1.3.2. Import fill materials must originate from a clean source, and be the lesser of the Canadian Council of Ministers of the Environment *Soil Quality Guidelines for Commercial and Industrial Land Uses*, and the British Columbia *Contaminated Sites Regulation Schedule 7- Standards Triggering Contaminated Soil Relocation Agreements, Soil Relocation to Non-agricultural Land*.
 - 2.1.3.3. Import fill material that is cobble sized or larger (> 64mm) brought onsite must be tested by the Contractor for Acid Rock Drainage (ARD) and Metals Leaching (ML) potential using acid base accounting (ABA) for assessment of ARD potential and more specifically using the Modified Sobek Test Method.

SOIL REMEDIATION GENERAL CONSTRUCTION

The potential for metals leaching must use Shake Flask Extraction (SFE) Method for analysis of metals leaching. See guidance document Price 2009, *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials* MEND Report 1.20.1, Natural Resources Canada.

- 2.1.3.4. Any import fill material which has a discrete sample exceeding the standards or guidelines specified must be removed from the Site and replaced, including relevant placed material, as instructed by the Departmental Representative, and an alternate source of backfill must be provided, with no increases to Contract Amount or Extension of Time for completion of the Work.
- 2.1.4. Import fill material additional testing:
 - 2.1.4.1. Perform additional testing as instructed by the Departmental Representative.
 - 2.1.4.2. Facilitate testing by the Departmental Representative.

3. PART 3 - EXECUTION**3.1. Examination**

- 3.1.1. Site Verification of Conditions:
 - 3.1.1.1. Contractor to determine condition of existing Site and requirements to make the Site suitable for Work.

3.2. Mobilization Requirements

- 3.2.1. Do not mobilize until instructed by Departmental Representative.
- 3.2.2. Mobilize all necessary equipment, materials and personnel to the Site in an orderly and efficient manner.

3.3. Site Preparation and Operation

- 3.3.1. Site Preparation and operation includes construction, operation and maintenance for the duration of the Work,
- 3.3.2. Remove all surficial Non-Contaminated Material to allow access for Work.
- 3.3.3. Remove obstructions, ice and snow, from surfaces to be worked.
- 3.3.4. Protection:
 - 3.3.4.1. Protect existing features with temporary barriers and enclosures as required by applicable local regulations.
 - 3.3.4.2. Keep excavations clean, free of standing water, and loose soil or sediment.
 - 3.3.4.3. Protect natural and man-made features required to remain undisturbed. Unless otherwise required or located in an area to be occupied by new construction, protect existing trees from damage.
 - 3.3.4.4. Protect buried utilities that are required to remain undisturbed.
 - 3.3.4.5. Provide temporary structures to divert flow of surface water from excavation.
- 3.3.5. Security and Safety:
 - 3.3.5.1. Provide safety measures to ensure worker and public safety.

SOIL REMEDIATION GENERAL CONSTRUCTION

- 3.3.5.2. Ensure Site is secure during onsite Work, provide, install, and remove fencing, temporary hoarding, and other security measures as required and specified.
- 3.3.6. Site including all restoration and excavation areas should be secured with locked fencing, temporary hoarding and security personnel.

3.4. Import Fill Material

- 3.4.1. Do not import fill material until Departmental Representative has completed and analysed testing. Testing and analysis will depend on parameters. Testing will be performed at industry regular (standard) turnaround times (i.e. not priority, emergency, same day or other rush turnaround times).
- 3.4.2. Departmental Representative will inspect import fill material, and will not allow import of fill material that varies from Submittal samples.

3.5. Site Restoration

- 3.5.1. Final site grades must be within 5 cm of pre-existing grades before Work commenced, unless otherwise specified.
- 3.5.2. Clean permanent access roads of contamination resulting from project activity as required or as instructed of Departmental Representative, with no increases to Contract Amount or Extension of Time for completion of the Work.
- 3.5.3. Decontaminate equipment used in construction processes and remove from Site at end of construction activities.
- 3.5.4. Remove all temporary structures including subsurface structures for shoring support.
- 3.5.5. Upon Final Completion of Work, remove Non-Contaminated Material materials and debris, trim slopes, and correct defects as instructed by the Departmental Representative.
- 3.5.6. Protect newly graded areas from traffic and erosion and maintain free of trash or debris until demobilization is completed and accepted by the Departmental Representative.
- 3.5.7. Reinstate pre-existing utilities and other infrastructure to original location and condition, meeting current standards, codes, and other requirements, unless otherwise indicated or as instructed by the Departmental Representative.

3.6. Demobilization

- 3.6.1. Do not demobilize until instructed by Departmental Representative.
- 3.6.2. Demobilize all necessary equipment, materials, and personnel from Site in an orderly and efficient manner.

END OF SECTION

EXCAVATING, TRENCHING AND BACKFILLING**1. PART 1 - GENERAL****1.1. Measurement Procedures**

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

- 1.3.1. Temporary Hoarding: at least 5 Working Days prior to installation, Submit a description of temporary hoarding.
- 1.3.2. Excavation and Backfilling Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit documentation describing excavation Work. Include:
- 1.3.2.1. Excavation slopes design.
 - 1.3.2.2. Sequence, methods and means for excavation dewatering and heave protection.
 - 1.3.2.3. Backfilling requirements. Meet or exceed requirements in accordance with the Contract and any other codes, bylaws, rules and regulations applicable to the performance of the Work.
 - 1.3.2.4. Procedures for excavations adjacent to utilities or other structures if the excavation has the potential to impact utilities or other structures.
 - 1.3.2.5. Monitoring and inspection requirements, including frequency or milestones when a Qualified Professional must inspect Works.
 - 1.3.2.6. Excavation and Backfilling Plan must be signed and sealed by a Qualified Professional, as required by ground conditions, excavation depth, shoring type, or support type.
- 1.3.3. Monitoring and Testing Results: within 5 Working Days of sampling, submit all monitoring and testing results. Include procedures, frequency of sampling, Quality Assurance and Quality Control testing and documentation to be provided. Provide monitoring and testing results, including any assessments performed by a Qualified Professional. Include:
- 1.3.3.1. Noise monitoring.
 - 1.3.3.2. Vibration monitoring.
 - 1.3.3.3. Imported fill material, including geotechnical and environmental quality.
 - 1.3.3.4. Compaction testing results.
 - 1.3.3.5. Environmental analytical results for spill or other environmental testing.
- 1.3.4. Weigh Scale Certification: at least 5 Working Days prior to use, Submit a copy of the Measurement Canada, Weigh Scale Certification for any onsite or offsite weigh scale used during transportation, treatment or disposal.
- 1.3.5. Weigh Scale Slips: within 10 days of measurement, Submit all onsite and offsite weigh scale slips for material.

EXCAVATING, TRENCHING AND BACKFILLING

2. PART 2 - PRODUCTS

2.1. Backfill Material

- 2.1.1. Meet backfill requirements as shown on Drawings.
- 2.1.2. Meet appropriate grain size distribution from Aggregate Gradations; of the BC Ministry of Transportation and Infrastructure, 2012 *Standard Specifications for Highway Construction (Nov. 1, 2011), Volume 1.*

3. PART 3 - EXECUTION

3.1. Site Review

- 3.1.1. Ensure that all Works comply with the final sealed design documents as prepared by a Qualified Professional.
- 3.1.2. Qualified Professional to visit Site regularly.

3.2. Install Temporary Hoarding

- 3.2.1. Place temporary hoarding in accordance with the Contract so as to provide a visual, environmental, and safety barrier between the Site and neighbouring properties.
- 3.2.2. Temporary hoarding to be a minimum of 2.4 m in height.
- 3.2.3. Temporary hoarding not to extend beyond the project Site boundary in accordance with the Contract.
- 3.2.4. Remove and replace temporary hoarding during excavation activities where excavation along the project Site boundary cannot be accomplished while the temporary hoarding is in place.
- 3.2.5. The type of temporary hoarding used will be as selected by the Contractor, but will be subject to approval. Only signage accepted by the Departmental Representative will be allowed. No advertising, company identifications, or other markings permitted.
- 3.2.6. Remove temporary hoarding from the Site during the Site Restoration.

3.3. Temporary support

- 3.3.1. Design Requirements:
 - 3.3.1.1. Allow excavation of all Contaminated Material laterally and vertically on the Site up to the project Site boundary in accordance with the Contract in order to result in no residual contamination at the Site.
 - 3.3.1.2. Provide a safe working environment for personnel and equipment within the dewatered excavation area.
 - 3.3.1.3. Additional support may be required and are considered part of the Temporary support design.

EXCAVATING, TRENCHING AND BACKFILLING

- 3.3.1.4. Temporary support cannot have any tiebacks or supports which extend beyond the project Site boundary. Support(s) which are to be constructed on Site property must be included in the support/cut-off wall design.
 - 3.3.1.5. Temporary support must not flex or bend when exposed while excavations are occurring on the Site.
 - 3.3.1.6. Seismic Resistance of Temporary support:
 - 3.3.1.6.1. Support structures are temporary structures only. Resistance to seismic loads will be at the discretion of the Qualified Professional.
 - 3.3.1.6.2. Be responsible for any failures and resultant costs should the Temporary support fail due to a seismic event during the construction period.
 - 3.3.1.7. All drawings to be signed and sealed by a Qualified Professional.
 - 3.3.1.8. Temporary support designs to be completed in accordance with methods in current version of *Canadian Foundation Engineering Manual*.
 - 3.3.2. Installation:
 - 3.3.2.1. All installation activities must take place on the Site. No staging or construction activities are to take place on adjacent properties.
 - 3.3.2.2. Installation must be regularly inspected by a Qualified Professional.
 - 3.3.3. Maintain side slopes of excavations in safe condition by appropriate methods and in accordance with relevant regulations.
 - 3.3.4. Construct temporary Works to depths, heights and locations to meet project requirements.
 - 3.3.5. During backfill operation:
 - 3.3.5.1. Unless otherwise indicated or as instructed by the Departmental Representative, remove Temporary support from excavations.
 - 3.3.5.2. Do not remove support until backfilling has reached respective levels of such bracing.
 - 3.3.5.3. Remove support in increments that ensure compacted backfill is maintained at elevation at least 500 mm above toe of support.
- 3.4. Dewatering and Heave Protection**
- 3.4.1. Keep excavations free of water while Work is in progress.
 - 3.4.2. Provide to Departmental Representative details of proposed dewatering or heave prevention methods, including dikes, well points, and sheet pile cut-offs.
 - 3.4.3. Plan for excavation below groundwater table to avoid quick conditions or heave.
 - 3.4.4. Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.
 - 3.4.5. Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.
 - 3.4.6. Keep excavations, staging pads, and other Work areas free from water including standby equipment necessary to ensure continuous operation of dewatering system.
 - 3.4.7. Dewatering Methods: includes sheeting and shoring; groundwater control systems; surface or free water control systems employing ditches, diversions,

EXCAVATING, TRENCHING AND BACKFILLING

drains, pipes and/or pumps; and other measures necessary to enable Work to be carried out in dry conditions.

- 3.4.8. Separate Contaminated Water from Non-Contaminated Water.

3.5. Excavation

- 3.5.1. Notify Departmental Representative at least 5 Working Days in advance of excavation operations.
- 3.5.2. Excavate to lines, grades, elevations and dimensions in accordance with the Contract or as instructed by Departmental Representative.
- 3.5.3. Excavation of Contaminated Material to extend to project Site boundary with potential residual contamination at Final Completion.
- 3.5.4. Excavation must not interfere with bearing capacity of adjacent foundations.
- 3.5.5. Machine cut banks and slopes.
- 3.5.6. Protect bottom of excavations from excessive traffic.
- 3.5.7. Grade excavation top perimeter to prevent surface water run-off into excavation.
- 3.5.8. Keep excavated and stockpiled materials safe distance away from edge of excavation.
- 3.5.9. Restrict vehicle operations directly adjacent to open excavations.
- 3.5.10. Segregate and handle to minimize the amount of Hazardous Waste materials wherever possible, while complying with Hazardous Waste disposal regulations. Segregation of Hazardous Waste during excavation will be by visual and olfactory characteristics and available in-situ characterization.
- 3.5.11. Contaminated Material onsite classification will be based on available in-situ characterization or ex-situ characterization as instructed by Departmental Representative.
- 3.5.12. Non-Contaminated Material onsite classification will be based on available in-situ characterization or ex-situ characterization as instructed by Departmental Representative.
- 3.5.13. Remove Waste Oversize Debris. Break or cut oversize debris into manageable size.
- 3.5.13.1. Piles encountered during excavation must be cut off at base of excavation. Piles are not to be extracted.
- 3.5.13.2. Debris that impinges on infrastructure or neighbouring properties is not to be removed unless instructed by Departmental Representative.
- 3.5.14. Remove Non-Contaminated Material to Landfill or re-use as Backfill-Owner Supplied as shown on Drawings.
- 3.5.15. Remove Contaminated Material to offsite Disposal Facility.
- 3.5.16. Earth bottoms of excavations to be undisturbed soil or sediment, level, free from loose, soft or organic material.
- 3.5.17. Notify Departmental Representative when bottom of excavation is reached.
- 3.5.18. Provide assistance for collection of Confirmation Samples as instructed to the Departmental Representative.
- 3.5.19. Obtain acceptance by Departmental Representative of completed excavation.

EXCAVATING, TRENCHING AND BACKFILLING**3.6. Backfill Types and Compaction**

- 3.6.1. Use only owner supplied backfill or imported backfill material in accordance with the Contract, which has been recommended by a Qualified Professional, and has previously accepted as a Submittal.
- 3.6.2. Compact material in accordance with the Contract to ensure no long term settlement and is suitable for planned post-remediation use:
 - 3.6.2.1. Compact each layer of material to the more stringent of Excavation Plan or Drawings.
 - 3.6.2.2. Machine compact all fill materials unless otherwise shown on Drawings.

3.7. Backfilling

- 3.7.1. Do not proceed with backfilling operations until completion of following:
 - 3.7.1.1. Confirmation Sampling, analysis, and assessment has been completed by the Departmental Representative. Confirmation Sampling, analysis, and assessment may take up to 10 Working Days. No Standby Time charges or increases to Contract Amount or Extension of Time for completion of the Work can be incurred for Confirmation Sampling results provided within 10 Working Days, not including day of sample collection.
 - 3.7.1.2. Surveying has been completed by a Land Surveyor for as-built documents
 - 3.7.1.3. Departmental Representative has inspected and excavation limits accepted by the Departmental Representative based on survey data and Confirmation Samples results.
 - 3.7.1.4. Departmental Representative has inspected and accepted backfill material.
 - 3.7.1.5. Proposed backfill material can be sampled and tested for geotechnical and environmental quality. Backfill material testing may take up to 10 Working Days not including day of sample collection.
 - 3.7.1.6. Departmental Representative has inspected and accepted compaction results for previous lift.
 - 3.7.1.7. Removal of shoring and bracing; backfilling of voids with satisfactory backfill material.
- 3.7.2. Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
- 3.7.3. Do not use backfill material which is frozen or contains ice, snow or debris.
- 3.7.4. Place backfill material in uniform layers not exceeding 300 mm compacted thickness, or in accordance with the Contract. Compact each layer to the satisfaction of the Qualified Professional and in accordance with the Contract before placing succeeding layer.
- 3.7.5. Backfill compaction to be tested by a Qualified Professional in accordance with Excavation Plan.
- 3.7.6. Notify Departmental Representative when final backfill grade is reached.
- 3.7.7. Do not begin subsequent Work until surveying has been completed by the Departmental Representative for documentation.

EXCAVATING, TRENCHING AND BACKFILLING

END OF SECTION

APPENDIX A

Site Photographs

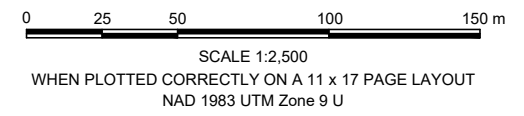


NOTES:
IMAGERY: ESRI WMS, DIGITAL GLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, AEROGRI, IGN, IGP, SWISSTOPO, AND THE GIS COMMUNITY, ACCESSED SEPTEMBER 2016.

BASEDATA:
© Department of Natural Resources Canada, All rights reserved; National Road Network, Geobase®, Downloaded March 2014; Aboriginal Lands, Geobase®, Downloaded March, 2014; BC regional Districts and Municipalities, GeoBC, Downloaded March 2014; Fresh Water Atlas, GeoBC®, Downloaded December 2014

- Contour (20m)
- Municipality Boundary
- Watercourse
- Wetlands
- Buildings
- First Nations Reservation
- Wooded Area
- Developed Area
- Expressway / Highway
- Arterial
- Local / Street
- Resource / Recreation

- LEGEND:**
- PROJECT AREA
 - AREA OF ENVIRONMENTAL CONCERN 37



THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
3475 BYNG ROAD
PORT HARDY, BC

PORT HARDY AIRPORT - SOIL REMEDIATION

SITE LOCATION

Date: November 25, 2016
Project No. 202.01582.00000

Drawing No. **1**

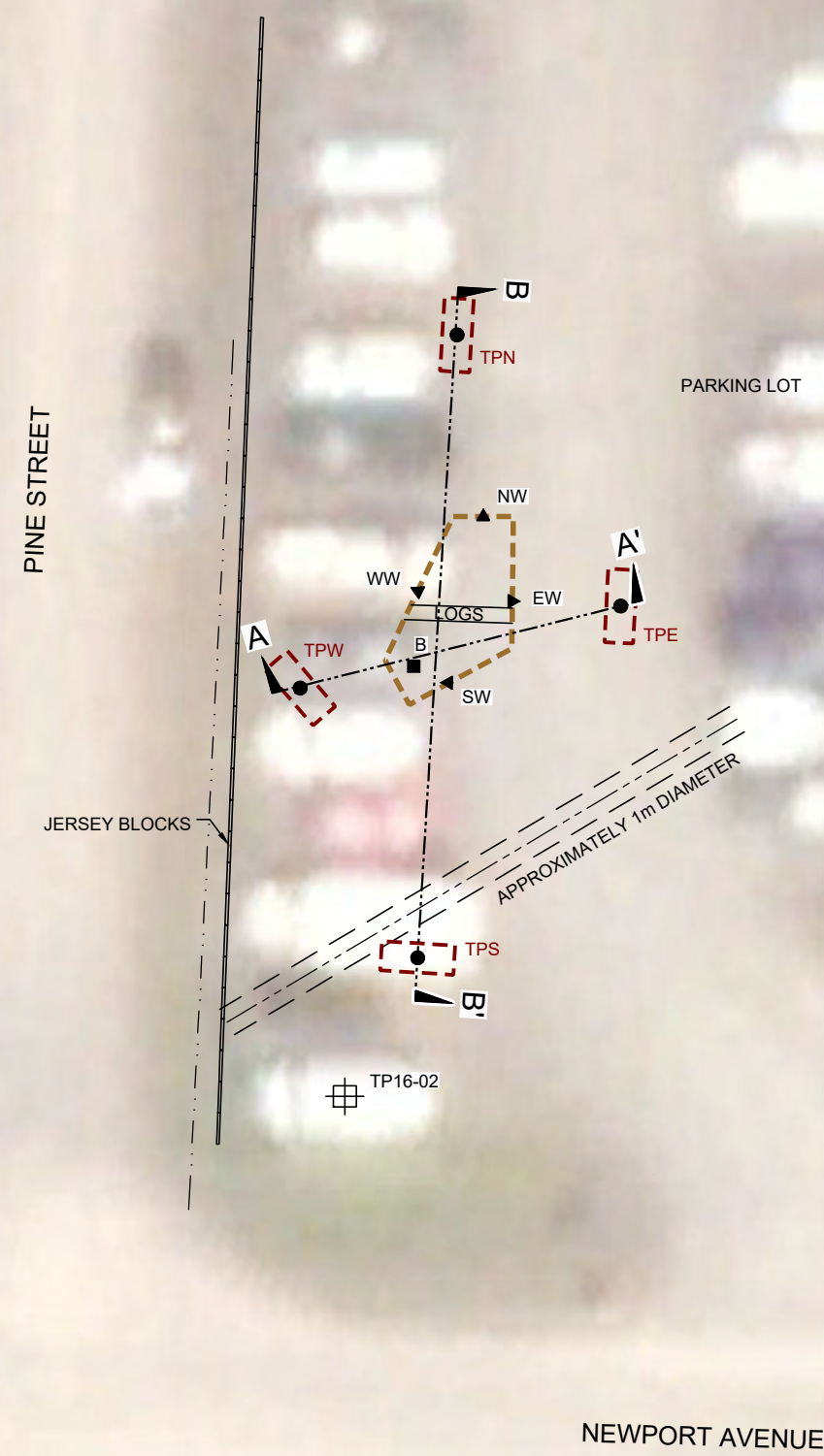




NOTES:
 IMAGERY: ESRI WMS, DIGITAL GLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, AEROGRID, IGN, IGP, SWISS TOPO, AND THE GIS COMMUNITY, ACCESSED SEPTEMBER 2016.

UTILITIES LOCATIONS ARE APPROXIMATE.

- LEGEND:
- EXCAVATION
 - TEST PIT
 - TEST PIT (AMEC)
 - SOIL SAMPLE, WALL
 - SOIL SAMPLE, FLOOR
 - TEST PIT SAMPLE
 - CROSS SECTION
 - UTILITIES
 - U/G SANITARY SEWER
 - U/G STORM SEWER



SCALE 1:250
 WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
 NAD 1983 UTM Zone 9 U

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
 3475 BYNG ROAD
 PORT HARDY, BC

PORT HARDY AIRPORT - SOIL REMEDIATION

SITE PLAN SHOWING TESTPITS, INFRASTRUCTURE, AND RESTRICTIONS

Date: November 25, 2016	Drawing No. 2
Project No. 202.01582.00000	



SOIL ANALYTICAL RESULTS (mg/kg)																	
Sample ID	B1	EW1	EW2	NW1	NW2	SW1	SW2	DUP A (Dup of SW2)	TP E	TP N	TP S	TP W	WW1	WW2	CCME sCLgw1	CCME sCLgw	
Date	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016	29-Aug-2016			
Depth (m)	2.1 m	0.15 - 0.6 m	1.2 - 1.6 m	0.15 - 0.6 m	1.2 - 1.6 m	0.15 - 0.6 m	1.2 - 1.6 m	1.2 - 1.6 m	1.0 - 1.5 m	0.8 - 1.2 m	1.0 - 1.5 m	1.0 - 1.5 m	0.15 - 0.6 m	1.2 - 1.6 m	ns	ns	
HSVL (ppmv)	LTDL	5	220	15	15	10	175	175	LTDL	LTDL	LTDL	120	5	25	ns	ns	
Benzene	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0068	0.03	
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.018	0.082	
Toluene	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.024	< 0.020	< 0.020	< 0.020	< 0.020	0.08	0.37	
Xylenes	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	2.4	11	
Styrene	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	ns	ns	
MTBE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	ns	ns	
F1 (C6-10)	< 10	< 10	75	< 10	< 10	< 10	35	18	< 10	< 10	< 10	30	< 10	16	170	240	
F2 (C10-16)	< 10	< 10	2000	< 10	< 10	< 10	500	490	< 10	< 10	16	290	< 10	160	230	320	
F3 (C16-34)	< 10	< 10	370	12	71	< 10	200	210	< 10	< 10	160	54	11	150	ns	ns	
F4 (C34-50+)	< 10	< 10	16	< 10	50	< 10	41	40	< 10	< 10	73	< 10	< 10	140	ns	ns	
PAHs	< CCME	---	< CCME	---	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	---	< CCME	cs	cs	
Metals	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	< CCME	cs	cs	

Notes:
m - metres
mg/kg - milligrams per kilogram
HSVL (ppmv) - headspace vapour level (hexane; parts per million by volume)
LTDL - less than the detection limit of the instrument
< - less than analytical detection limit indicated
'---' - sample not analyzed for parameter indicated
MTBE - methyl tert-butyl ether
PAH - polycyclic aromatic hydrocarbons
ns - no standard listed
CCME - Canadian Council of Ministers of the Environment, Canadian Environmental Quality Guidelines, 1999 (with amendments to 2014)
CCME sCLgw1: CCME Canada-Wide Standards for Petroleum Hydrocarbons in Subsoil, Tier 1 Levels for PHC fractions(F1-F4) for Commercial Fine-grained subsoil, Protection of Potable GW
CCME sCLgw: CCME Canada-Wide Standards for Petroleum Hydrocarbons in Subsoil, Tier 1 Levels for PHC fractions(F1-F4) for Commercial Coarse-grained subsoil, Protection of Potable GW
cs - compound specific standards; refer to report for more information
Red - Exceeds applicable CCME standards
Green - equal to or less than the applicable CCME standards

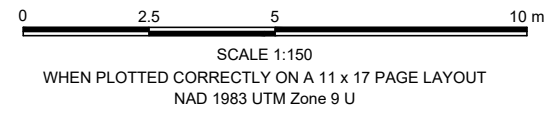


NOTES:
IMAGERY: ESRI WMS, DIGITAL GLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, AERGRID, IGN, IGP, SWISSSTOPO, AND THE GIS COMMUNITY, ACCESSED SEPTEMBER 2016.

UTILITIES LOCATIONS ARE APPROXIMATE.

LEGEND:

- EXCAVATION
- - - TEST PIT
- ⊕ TEST PIT (AMEC)
- ▲ SOIL SAMPLE, WALL
- SOIL SAMPLE, FLOOR
- TEST PIT SAMPLE
- UTILITIES
- - - U/G SANITARY SEWER
- - - U/G STORM SEWER
- SOIL LABORATORY ANALYSIS RESULTS
- CONCENTRATIONS LESS THAN OR EQUAL TO APPLICABLE CCME STANDARDS
- CONCENTRATION(S) GREATER THAN APPLICABLE CCME STANDARD(S)



THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
3475 BYNG ROAD
PORT HARDY, BC

PORT HARDY AIRPORT - SOIL REMEDIATION

SOIL ANALYTICAL RESULTS

Date: November 25, 2016	Drawing No. 3
Project No. 202.01582.00000	

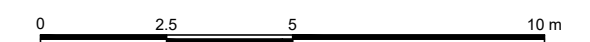




NOTES:
 IMAGERY: ESRI WMS, DIGITAL GLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, AEROGRIID, IGN, IGP, SWISS TOPO, AND THE GIS COMMUNITY, ACCESSED SEPTEMBER 2016.

UTILITIES LOCATIONS ARE APPROXIMATE.

- LEGEND:
- EXCAVATION
 - LATERAL LIMITS OF REMEDIAL EXCAVATION
 - TEST PIT
 - TEST PIT (AMEC)
 - SOIL SAMPLE, WALL
 - SOIL SAMPLE, FLOOR
 - TEST PIT SAMPLE
 - UTILITIES
 - U/G SANITARY SEWER
 - U/G STORM SEWER
 - SOIL LABORATORY ANALYSIS RESULTS
CONCENTRATIONS LESS THAN OR EQUAL TO APPLICABLE CCME STANDARDS
 - CONCENTRATION(S) GREATER THAN APPLICABLE CCME STANDARD(S)



SCALE 1:150
 WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
 NAD 1983 UTM Zone 9 U

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

PUBLIC WORKS AND GOVERNMENT
 SERVICES CANADA
 3475 BYNG ROAD
 PORT HARDY, BC

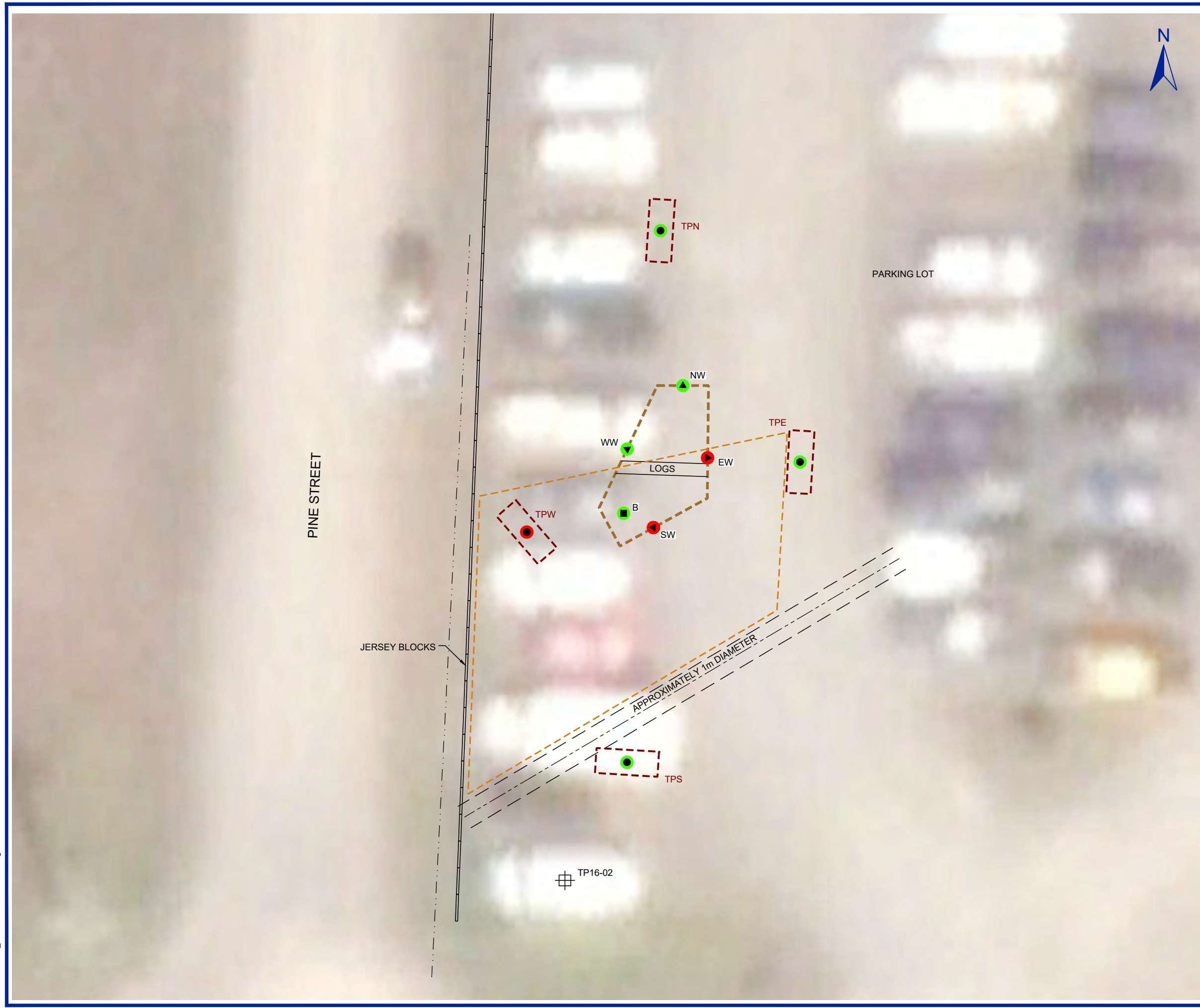
PORT HARDY AIRPORT - SOIL REMEDIATION

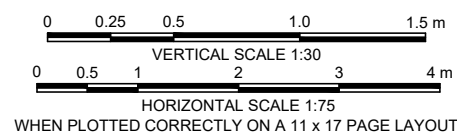
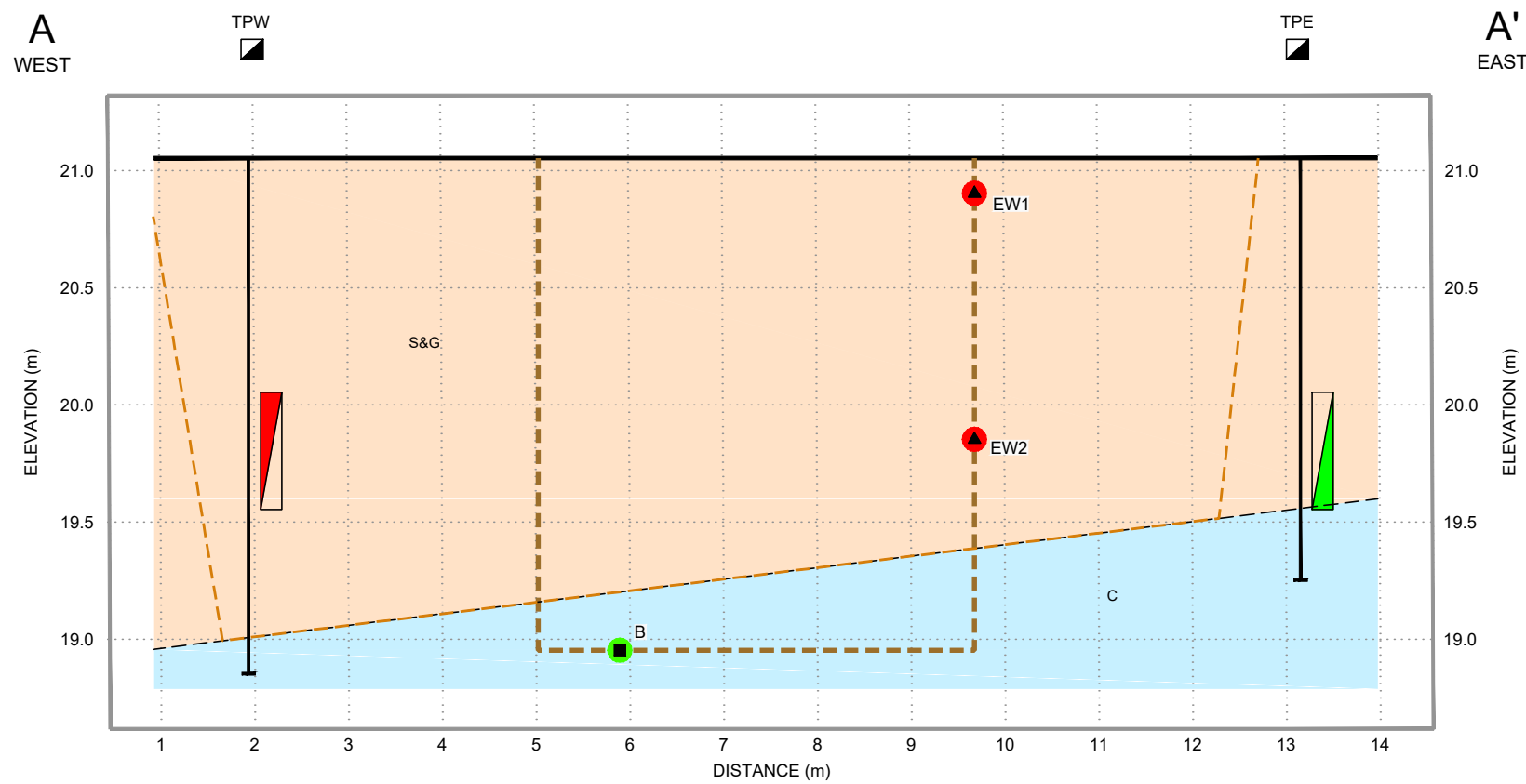
LATERAL LIMITS OF REMEDIAL EXCAVATION

Date: November 25, 2016	Drawing No. 4
Project No. 202.01582.00000	

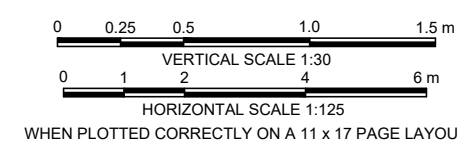
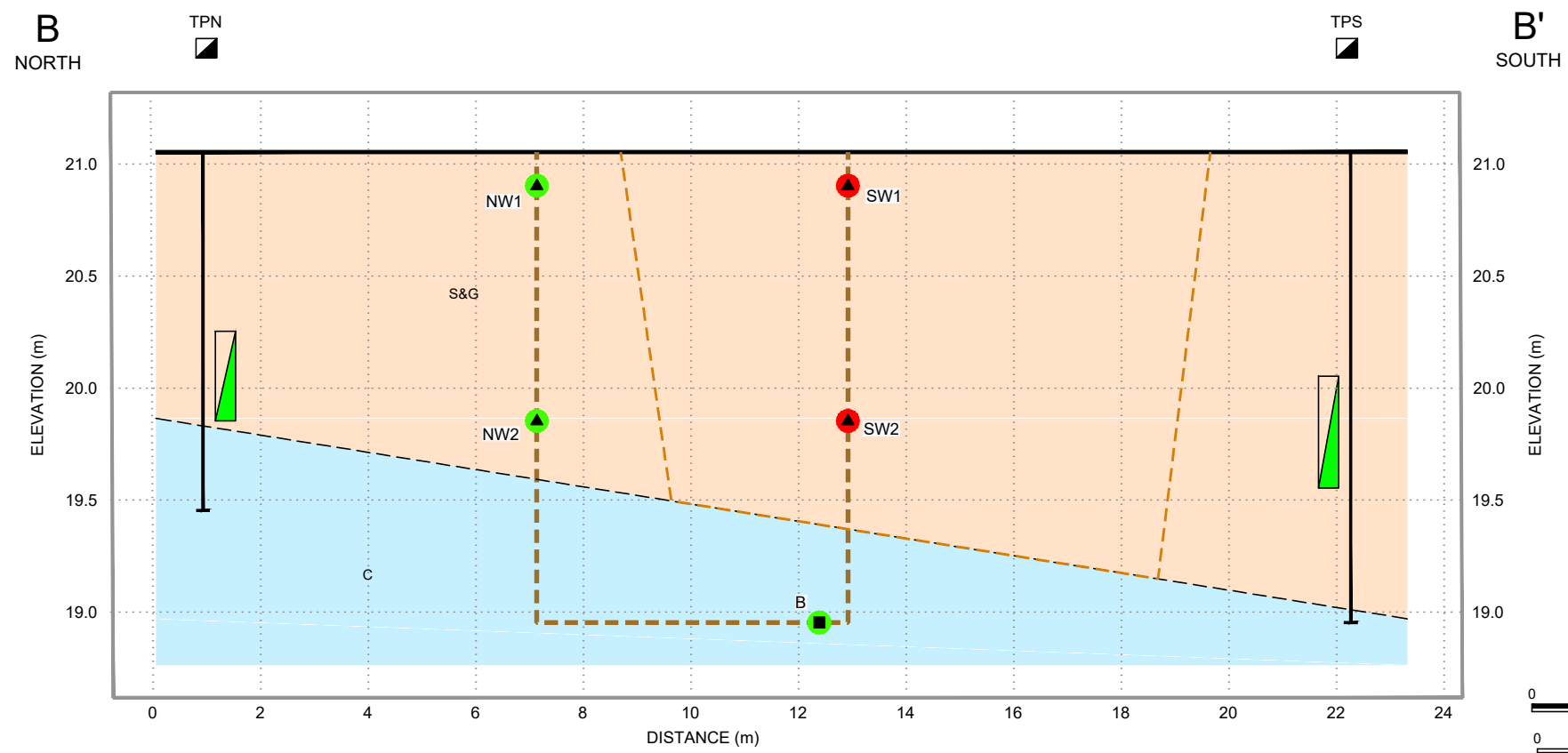


Cadfile name: S_202-01582-00000-A2.dwg





- LEGEND:**
- EXCAVATION
 - LATERAL LIMITS OF REMEDIAL EXCAVATION
 - TEST PIT
 - SOIL SAMPLE, WALL
 - SOIL SAMPLE, FLOOR
 - SG SAND AND GRAVEL
 - C CLAY
 - SOIL LABORATORY ANALYSIS RESULTS SAMPLE (CONCENTRATIONS LESS THAN OR EQUAL TO THE APPLICABLE CSR CL STANDARDS)
 - SAMPLE (CONCENTRATIONS GREATER THAN THE APPLICABLE CSR CL STANDARDS)
 - CONCENTRATIONS LESS THAN OR EQUAL TO APPLICABLE CCME STANDARDS
 - CONCENTRATION(S) GREATER THAN APPLICABLE CCME STANDARD(S)



THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
3475 BYNG ROAD
PORT HARDY, BC

PORT HARDY AIRPORT - SOIL REMEDIATION

**CROSS SECTION A - A' /
CROSS SECTION B - B'**

Date: November 25, 2016	Drawing No. 5
Project No. 202.01582.00000	



APPENDIX B

Test Pit Logs



Photo 1: Facing north - looking towards remediation area within overflow parking area



Photo 2: Facing south – looking towards remediation area within overflow parking area



SITE PHOTOGRAPHS

Port Hardy Airport – Soil Remediation
3475 Byng Road
Port Hardy, BC

Project No: 202.01582.00000

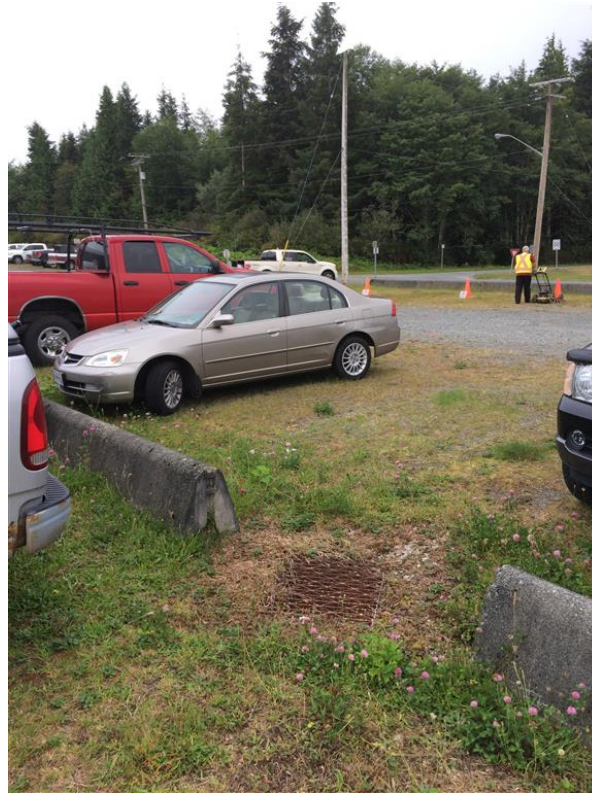


Photo 3: Facing southwest – looking at storm drain which runs through the overflow parking area and along the southern boundary of anticipated excavation limit.



Photo 4: Facing west – looking towards remediation area within overflow parking area



Port Hardy Airport – Soil Remediation
 3475 Byng Road
 Port Hardy, BC

SITE PHOTOGRAPHS

Project No: 202.01582.00000



Photo 5: Facing east – looking towards remediation area within overflow parking area



Photo 6: Facing west – looking at logs and subsurface conditions encountered within excavation where petroleum hydrocarbons were identified



SITE PHOTOGRAPHS

Port Hardy Airport – Soil Remediation
3475 Byng Road
Port Hardy, BC

Project No: 202.01582.00000



Photo 7: Looking at subsurface conditions encountered within test pit TPE



Photo 8: Looking at subsurface conditions encountered within test pit TPN



SITE PHOTOGRAPHS

Port Hardy Airport – Soil Remediation
3475 Byng Road
Port Hardy, BC

Project No: 202.01582.00000



Photo 9: Looking at subsurface conditions encountered within test pit TPS



Photo 10: Looking at subsurface conditions encountered within test pit TPW



Port Hardy Airport – Soil Remediation
3475 Byng Road
Port Hardy, BC

SITE PHOTOGRAPHS

Project No: 202.01582.00000

TEST PIT LOG TP16-02

TEST PIT LOG TP16-02					Su (kPa)					
DEPTH (m)	SPT BLOWS PER 150 mm	% Fines < No. 200	SAMPLE TYPE AND NUMBER	SYMBOL	STARTED: 31/05/2016 FINISHED: 31/05/2016					
					METHOD: Excavation by Backhoe					
					UTM (E): 614538 (N): 5615955		SITE: Port Hardy, BC ELEV. 21.0M			
					DESCRIPTION OF MATERIALS					
1			G1		FILL - silty sand, some gravel, brown, compact, dry - @ 0.7 m below, moist - @ 1.2 m below, dark brown, some wood and wastes, wet, strong fuel odour, water ponding					5 15 25 35 45 FIELD VANE P PEN PEAK REMOULDED SPT N DCPT N Blows/0.3 m W _p % W% W _l % 10 30 50 70 90
1.5					19.5 End of Testpit - Testpitting was terminated due to strong fuel odour and wastes encountered. - Testpit backfilled with cuttings as instructed by owner on completion. The borehole location was marked for further review by others.					6
2										
3										
4										
5										
6										
7										
8										
9										
10										

TH-AFW KA21110 PORT HARDY AIRPORT ATB - TESTPITS.GPJ ALL-1.GDT 16/6/16



AMEC FOSTER WHEELER
 Environment & Infrastructure
 18568 - 96th Avenue, # 110
 Surrey, BC V4N 3P9

PROJECT NO.: KA21110	
PROJECT: Port Hardy Airport ATB Project	
LOCATION: Port Hardy, BC	
LOGGED BY: bc	REVIEWED BY: rf
SHEET 1 OF 1	TEST PIT No. TP16-02



CLIENT: **PWGSC**
 PROJECT: **Port Hardy Airport**
 ADDRESS: **3675 Byng Road Port Hardy, BC**
 SLR JOB NO: **202.01582.00000**

BOREHOLE LOG

BOREHOLE NO: **TPE**
 SURFACE ELEVATION: **Not Surveyed**

SLR CONSULTING (CANADA) LTD.

DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA					COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
						ORGANIC VAPOUR LEVEL (ppmv)								
						1	10	100	1000	10000				
1		TPE			SAND AND GRAVEL sand is fine to coarse, trace silt, dense, grey-brown, moist - becomes oxidized at 0.4 m - no oxidization at 0.6 m								backfilled with cuttings	1.0
					CLAY some silt, low to medium plasticity, firm, grey, moist End of borehole at 1.8 m									

SLR CANADA V5.2 01582 PORT HARDY AIRPORT TP LOGS NOV 2016.GPJ SLR_CAN V5.2.GDT 11/23/16



CLIENT: **PWGSC**
 PROJECT: **Port Hardy Airport**
 ADDRESS: **3675 Byng Road Port Hardy, BC**
 SLR JOB NO: **202.01582.00000**

BOREHOLE LOG

BOREHOLE NO: **TPN**
 SURFACE ELEVATION: **Not Surveyed**

SLR CONSULTING (CANADA) LTD.

DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA					COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
						ORGANIC VAPOUR LEVEL (ppmv)								
						1	10	100	1000	10000				
1		TPN			SAND AND GRAVEL sand is fine to coarse, trace silt, dense, grey-brown, moist								backfilled with cuttings	1.0
					CLAY some silt, low to medium plasticity, firm, grey, moist End of borehole at 1.6 m									

DRILLING METHOD: Excavator

Notes: GRAB SAMPLE

DRILL DATE: August 29, 2016

LOGGED BY: JAH
 DRILLER NAME



CLIENT: **PWGSC**
 PROJECT: **Port Hardy Airport**
 ADDRESS: **3675 Byng Road Port Hardy, BC**
 SLR JOB NO: **202.01582.00000**

BOREHOLE LOG

BOREHOLE NO: **TPS**
 SURFACE ELEVATION: **Not Surveyed**

SLR CONSULTING (CANADA) LTD.

DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA					COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
						ORGANIC VAPOUR LEVEL (ppmv)								
						1	10	100	1000	10000				
1		TPS			SAND AND GRAVEL sand is fine to coarse, trace silt, dense, grey-brown, moist									1.0
2					CLAY some silt, low to medium plasticity, firm, grey, moist End of borehole at 2.1 m									2.0

SLR CANADA V5.2 01582 PORT HARDY AIRPORT TP LOGS NOV 2016.GPJ SLR_CAN V5.2.GDT 11/23/16



CLIENT: **PWGSC**
 PROJECT: **Port Hardy Airport**
 ADDRESS: **3675 Byng Road Port Hardy, BC**
 SLR JOB NO: **202.01582.00000**

BOREHOLE LOG

BOREHOLE NO: **TPW**
 SURFACE ELEVATION: **Not Surveyed**

SLR CONSULTING (CANADA) LTD.

DEPTH (m)	SAMPLE TYPE	SAMPLE ID	SPT COUNT	SOIL TYPE	SOIL DESCRIPTION	FIELD TEST DATA					COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	DEPTH (m)
						ORGANIC VAPOUR LEVEL (ppmv)								
						1	10	100	1000	10000				
1		TPW			SAND AND GRAVEL sand is fine to coarse, trace silt, dense, grey, moist - becomes oxidized at 0.4 m - no oxidization at 0.6 m - dark grey at 0.7 m									1.0
2					CLAY some silt, low to medium plasticity, firm, grey, moist End of borehole at 2.2 m									2.0

SLR CANADA V5.2 01582 PORT HARDY AIRPORT TP LOGS NOV 2016.GPJ SLR_CAN V5.2.GDT 11/23/16

DRILLING METHOD: Excavator

Notes: GRAB SAMPLE

DRILL DATE: August 29, 2016

LOGGED BY: JAH
 DRILLER NAME