Public Works and Government Services Canada

Requisition No: EZ897220112

DRAWINGS & SPECIFICATIONS
For RP-14 Former Landfill Remediation Project

APPROVED BY:

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Real Property Services Branch, Professional and Technical Services, Pacific Region
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Annexes are for reference purposes only.

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END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. Not Used.

1.2. Definitions

1.2.1. See 01 11 55.

1.3. Action and Informational Submittals

1.3.1. Not Used.

1.4. Work Covered by Contract

1.4.1. Work under the Contract covers excavation of contaminated soil and removal of surface debris for off-Site disposal at a licensed disposal facility.

1.4.2. Work to be performed under the Contract includes, but is not limited to, the following items, including all ancillary Work, covered further in the Contract:

1.4.2.1. Prime Contractor for health and safety and environmental protection at Site.

1.4.2.2. Pre-mobilization Submittals.

1.4.2.3. Progress Submittals, including cash flow and forecasting.

1.4.2.4. Prepare Site for Work, including clearing site as required as specified in the Environmental Effects Determination and provision of on-Site temporary office facilities for Department Representative and consultants.

1.4.2.5. Excavation of the following classes of soil based on Environmental Quality Criteria are:

1.4.2.5.1. Hazardous Waste Quality

1.4.2.5.2. Waste Quality

1.4.2.5.3. Non-Contaminated Quality

1.4.2.6. Soil classification based on in-situ testing; ex-situ testing may be required as directed by the Departmental Representative.

1.4.2.7. The presence of munitions constituents such as any materials originating from UXO, discarded military munitions, or other military munitions is not anticipated to be encountered during remedial excavation activities; however, the Contractor shall be familiar with the procedures for recognizing and safely responding to munitions constituents and UXOs as outlined in the Department of National Defence's UXO Safety Handbook.

1.4.2.8. Treatment of Contaminated Water Off Site. Contractor responsible for transport and treatment. Contractor takes ownership of all material leaving site.

1.4.2.9. Excavation of Contaminated Soil as per Drawings. Contractor solely responsible for excavating to Contaminated Material Limits. Excavation Limits shown on Drawings do not include slope for shoring assumed to be 1:1 for volume estimating purposes; actual shoring and/or slope requirements responsibility of the Contractor. Preference is given to the use of limited access equipment in order to limit the impact within the medium grade habitat areas as shown on Figure 1 of the Environmental Effects Determination. The utilized

equipment is to be able to properly access the Site from the road with minimal required tree removal and back up within the Site.
The south excavation is to extend to a maximum of 2 m below ground surface (bgs) and the north excavation is to extend to 0.3 m bgs pending confirmatory soil analytical results. The south excavation should be completed in 0.5 m lifts to facilitate segregated stockpiling and further soil classification.

1.4.2.10. The Contractor becomes the owner of, and is responsible for soil or other material once it is excavated from its original location and loaded on a vehicle for transport to the Contractor Off-Site Offload Facility, Processing Facility, and/or Disposal Facility. Exception items include Suspected UXO or structures, ionizing radiation items, or archaeologically significant items that may be valued for their historical, archaeological, architectural, or paleontological significance as determined by the Archaeological Monitor, which remain the property of Canada.

1.4.2.11. Disposal of Contaminated Soil. All material identified as Contaminated on the Site must be disposed of at an approved licensed Disposal Facility, including material that has been Treated.

1.4.2.12. Removal of Non-Contaminated Material (< CSR Residential standards) including concrete, metal, and other surface debris.

1.4.2.13. Disposal of Non-Contaminated Material (< CSR Residential standards)

1.4.2.14. Backfill excavations with clean imported fill material as specified in the Environmental Effects Determination.

1.4.2.15. Restore the Site to include placement of topsoil, seeding and tree planting as specified in the Environmental Effects Determination (Table 9). Note, replanted trees should have a basal diameter not less than 4 cm and not less than 1.5 m in height. The tree replacement will be completed in accordance with the Environmental Effects Determination. A provision is to be included for replanting of failed trees (assumed 10% die off of original planted trees) and watering of the newly planted trees on three separate occasions.

1.4.2.16. The Site area is located on CFAD Rocky Point which has the potential presence of unexploded ordinance (UXO). A UXO guidance document is included in Annex F.

1.5. Location

1.5.1. The Site location is shown on Drawings.

1.6. Project/Site Conditions

1.6.1. Contractor must provide personnel and equipment with appropriate experience for site conditions, including experience in remediating site-specific Contaminated Material. Contractor to provide specialized material handling, health and safety, and environmental protection procedures, and must have knowledge of appropriate regulations.

1.6.2. Work at Site involves Work with Contaminated Material. Complete list of anticipated contaminants and concentration levels on the Site available separately in Appendices and/or Drawings.
1.6.3. Existing condition on the Site identified according to Drawings. Annexes provided for reference purposes only.

1.7. Other Contracts

1.7.1. Other contracts are currently in progress at Site.
1.7.2. Other contracts are:
1.7.2.1. Environmental and other consultants.
1.7.2.2. Site users as identified in Contract Documents.
1.7.3. Further contracts may be awarded while the Contract is in progress.
1.7.4. Cooperate with other contractors in carrying out their respective works and carry out directions from Departmental Representative.
1.7.5. 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.

1.8. Contractor's Use of Site

1.8.1. Use of Site:
1.8.1.1. For the sole benefit of Canada.
1.8.1.2. Exclusive and only for completion of the execution of Work.
1.8.1.3. Assume responsibility of Prime Contractor and control for assigned premises for performance of this Work.
1.8.1.4. Be responsible for coordination of all Work activities on site, including the Work of other contractors engaged by the Departmental Representative.
1.8.2. There are no pre-existing arrangements for access or encroachment on neighbouring properties. Off-site access, occupancy, or encroachment is the responsibility of the Contractor.
1.8.3. Perform Work in accordance with Contract. Ensure Work is carried out in accordance with schedule accepted by Departmental Representative.
1.8.4. Do not unreasonably encumber Site with material or equipment.
1.8.5. Accommodate common areas with other Site users, including roadways.
1.8.6. Segregate Contractor's work area from common areas to prevent unintentional multiple employer worksite, as required.

1.9. Existing Permits

1.9.1. Existing Permits and Authorizations are:
1.9.1.1. None

1.10. Schedule Requirements

1.10.1. Work to be initiated: as soon as practical, and no later than 14 days, after Contract award.

1.10.2. Pre-Mobilization Submittals: at least 10 Working Days of Contract Award
1.10.3. Submit all documents required for mobilization, including at a minimum the Contractor's site-specific project Health and Safety Plan and emergency procedures.
1.10.4. Site Works: Final Completion no later than December 31, 2021.
1.10.5. Completion of the Work: no later than December 31, 2021. Includes all final Submittals including as-built documents, the Certificate of Completion, and the Statutory Declaration at Final Completion.

1.11. Hours of Work

1.11.1. Restrictive as follows:
1.11.1.1. Working Days are Monday to Saturday.
1.11.1.2. Working Hours are 07:00 to 19:00.
1.11.2. Work outside of Working Days and Working Hours is at Department Representative's sole discretion, and must be accepted in writing by Departmental Representative by Submission. Work outside of working hours must be approved minimum 5 business days in advance.
1.11.3. Be responsible for Site outside of Working Days and Working Hours and have a continuous presence on Site as required, in accordance with the Contract, or as directed by the Departmental Representative, to ensure:
1.11.3.1. Protection of health and safety for potentially hazardous activities (e.g., deep open excavations).
1.11.3.2. Site security for Sites in urban environments.
1.11.3.3. Maintenance of environmental monitoring and protection measures for Sites in urban environments or with sensitive neighbouring properties.

1.12. Security Clearances

1.12.1. Where security has been reduced by Work of Contract, provide temporary means to maintain security.

1.12.2 Security clearances:

1.12.1.1. Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require access to the premises.
1.12.1.2. Obtain requisite clearance, as instructed, for each individual required to enter premises.
1.12.1.3. All Contractor employees and sub-contractors employed by the Contractor shall hold current and valid "Reliability Security Status Screenings (RSSS)" and Contractor Security Passes in order to be allowed access to the base. Unscreened personnel will be denied access to the base.
1.12.1.4. A security requirements checklist is included in Annex G.

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. Not Used.

1.2. Definitions

1.2.1. Advisory: notices, instructions, or directions issued by the Departmental Representative to the Contractor.

1.2.2. Certificate of Completion: see General Conditions.

1.2.3. Change Order: PSPC form issued by the Departmental Representative to the Contractor as per the relevant Contemplated Change Notice.

1.2.4. Classification: material (including soil and water) categorized into different classes based on Environmental Quality Criteria. Includes Hazardous Waste Quality, Waste Quality, Non-Contaminated Quality. Sub-classification based on specific parameters as identified in Contract. Re-classification must have approval of Departmental Representative.

1.2.5. 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.

1.2.6. Contaminated Material: 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 Quality and Waste Quality. Does not include Non-Contaminated Quality material. Includes Contaminated Soil. Relevant regulations, unless otherwise in accordance with the Contract or as directed by the Departmental Representative, include:

1.2.6.1. Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines*, the CCME *Canada-wide Standard for Petroleum Hydrocarbons (PHC) in Soil*, and the Federal Contaminated Sites Action Plan (FCSAP) *Guidance Document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites*.

1.2.6.2. BC *Hazardous Waste Regulation*, BC *Contaminated Sites Regulation*, and BC *Approved Water Quality Guidelines*.

1.2.7. Contaminated Soil Extents: lateral and vertical extents of Contaminated Soil to be remediated to meet remediation objectives. Does not include Topsoil, Overburden, or other Non-Contaminated Quality Soil excavated incidentally. Extents, including contaminants and concentrations, on Drawings are approximate and may vary based on field observations or Confirmation Samples.

1.2.8. Contaminated Water Treatment Plant: a temporary on-site or existing off-site 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.

1.2.9. Contemplated Change Notice: PSPC form issued by the Departmental Representative to the Contractor requesting Contractor to provide a quote, which may result in a Change Order.

1.2.10. Contract: see General Conditions.

1.2.11. Contract Amount: see General Conditions.

1.2.12. Departmental Representative: see General Conditions.

1.2.13. Discharge Approval: permit, certificate, approval, license, or other required form of authorization issued by appropriate federal agency, province, territory, or municipality having jurisdiction and authorizing discharge.

1.2.14. Disposal Facility: an off-site facility specifically used to introduce Contaminated Material into the environment for the purpose of final burial.

1.2.15. 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.

1.2.16. 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.

1.2.17. 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.

1.2.18. Environmental Quality Criteria: numerical material criteria used on Site based on Standards and/or Guidelines specified by the Canadian Council of Ministers of the Environment and/or BC *Contaminated Sites Regulation* as applicable, using appropriate Land Use and Site-specific Factors.

1.2.19. Excavation Extents: lateral and vertical extents of Soil to be excavated to meet Contaminated Soil Extents, as determined by Contractor's Qualified Professional. Includes Overburden. Extents on Drawings are approximate and may vary based on field observations or Confirmation Samples.

1.2.20. Extension of Time: see General Conditions.

1.2.21. Extension of Time on Contracts: PSPC form requesting an Extension of Time.

1.2.22. Facility Authority:

1.2.22.1. For facilities within provincial or territorial jurisdiction: the relevant provincial or territorial ministry.

1.2.22.2. For facilities on First Nation reserve land in Canada not subject to the First Nation Land Management regime: Indigenous and Northern Affairs Canada.

1.2.22.3. For facilities on First Nations land in Canada subject to the First Nation Land Management Act regime: the relevant First Nation Council. Documentation must be provided that the facility is on land subject to the First Nation Land Management Act regime.

1.2.22.4. For facilities in the United States of America: either or both of the Environmental Protection Agency and the relevant State, as appropriate.

1.2.23. Final Completion: see General Conditions.

1.2.24. Final Excavation Limits: lateral and vertical extents of excavation as determined by Contractor's Qualified Professional Surveyor. Includes Contaminated Soil, Topsoil, Overburden, or other Non-Contaminated Quality Soil excavated incidentally including Temporary Sloping and Shoring.

1.2.25. Hazardous Waste Quality: Contaminated material which meets the applicable Regulatory definition of Hazardous Waste.

1.2.26. Inherent Delay. Potential downtime that is considered to be inherent to conducting the work and that does not qualify as Stand-by Time. The Contractor must carefully consider and account for downtime associated with potential Inherent Delays in the appropriate Tender Item. The following representative scenarios are considered Inherent Delays, and other scenarios may apply:

a) Encountering Suspected UXO during excavation at the Work Site or segregation at the Processing Facility that is deemed safe to move by the UXO Qualified Personnel.

b) Encountering structures, sites, or things that may be valued for their historical, archaeological, architectural, and paleontological significance during excavation or segregation at the Processing Facility, as determined by the Archaeological Monitor, but that do not result in work stoppage directed by the Departmental Representative.

c) All time spent between the encountering of Suspected UXO or an item of potential historical, archaeological, architectural, and paleontological significance and the determination of its safety risk or significance.

d) Inclement weather.

1.2.27. .

1.2.28. Land Treatment Facility (LTF): equivalent of Soil Treatment Facility.

1.2.29. Landfill Facility: an off-site facility specifically used to introduce Non-Contaminated Quality Soil into the environment for the purpose of final burial.

1.2.30. Master Plan: baseline schedule determined by Contractor compliant with Schedule Requirements. Duration for any portion of the Work based on Master Plan.

1.2.31. 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.

1.2.32. National Master Specifications: the Specifications are subdivided in accordance with the current 6 digit National Master Specifications System; the first 2 digits are the Division, the last 4 digits are the Section. A Division may consist of the Work of more than 1 Subcontractor; responsibility for determining which Subcontractor provides the labour, material, equipment and services required to complete the Work rests solely with the Contractor

1.2.33. Non-Contaminated Quality: material that does not exceed applicable Environmental Quality Criteria.

1.2.34. On-site Soil Treatment Facility (On-site STF): a facility constructed and operated on property under the control of PSPC specifically used to bioremediate Contaminated Soil originating only from federal Sites.

1.2.35. Overburden: Non-Contaminated Quality Soil excavated incidentally as required above or adjacent to Contaminated Soil.

1.2.36. 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).

1.2.37. Prime Contractor: see General Conditions “Contractor”, BC Occupational Health and Safety Regulations “Prime Contractor.

1.2.38. Progress Payment: see General Conditions.

1.2.39. Progress Survey: Survey conducted using equipment such as tape measurements, non-differential GPS, theodolite, or truck counts. Not a survey conducted by a Qualified Professional Surveyor.

1.2.40. PSPC: Public Services and Procurement Canada. Representative of Canada with control of the Site.

1.2.41. Qualified Professional: a person who is registered in relevant jurisdiction with his or her appropriate professional college/association, acts under that professional college/association's code of ethics, and is subject to disciplinary action by that professional college/association, and through suitable education, experience, accreditation and knowledge can be reasonably relied on to provide advice within his or her area of expertise. Only full membership will be considered to be a Qualified Professional (i.e., no "in training" designations). Includes:

1.2.41.1. Association of the Chemical Profession of British Columbia.

1.2.41.2. British Columbia College of Applied Biology.

1.2.41.3. British Columbia Institute of Agrologists.

1.2.41.4. Engineers and Geoscientists British Columbia.

1.2.42. Qualified Professional Surveyor: a person who is registered in relevant jurisdiction with his or her appropriate professional college/association, acts under that professional college/association's code of ethics, and is subject to disciplinary action by that professional college/association, and through suitable education, experience, accreditation and knowledge can be reasonably relied on to provide

advice within his or her area of expertise. Only full membership will be considered to be a Qualified Professional (i.e., no "in training" designations). Includes:

1.2.42.1. Association of British Columbia Land Surveyors.

1.2.42.2. Association of Canada Lands Surveyors.

1.2.42.3. Applied Science Technologists & Technicians of British Columbia registered in Site Improvements Surveys.

1.2.42.4. Engineers and Geoscientists British Columbia.

1.2.43. Quote: Quotation for Design Change or Additional Work. Contractor's cost proposal issued to the Departmental Representative as per the relevant Contemplated Change Notice. May be either a Lump Sum Arrangement or a Unit Price Arrangement.

1.2.44. Remediation by Excavation: complete excavation of Contaminated Soil and Non-Contaminated Quality Soil to the Site boundaries for the purpose of removal of Contaminated Soil to meet PSPC requirements. Includes full treatment and disposal. Does not include risk assessment or risk management of material on site. Does not include encapsulation or solidification in place.

1.2.45. Request For Information: notice or other communication issued by the Contractor to the Departmental Representative.

1.2.46. Sewage: liquid waste which is not suitable for direct discharge to the environment, and which must be either treated off site or discharged to a sanitary sewer. Includes water from hand basin, shower, personal hygiene facilities, or other liquid waste from sanitary facilities.

1.2.47. Site: work area available to Contractor according to Drawings. Does not include shared or public areas, including common roads.

1.2.48. Soil: unconsolidated mineral or organic material, rock, fill, and sediment deposited on land, and other solid material excavated incidentally. Includes Topsoil and Overburden. Includes cleared and grubbed vegetation, litter, rubbish, debris, cobbles, boulders, excess construction material, lumber, steel, plastic, concrete, and asphalt and other waste material.

1.2.49. Soil Treatment Facility: facility for bioremediating contaminated soil. Includes Treatment Cells, Staging Cells, and ancillary Access Roads.

1.2.50. Special Waste: equivalent of Hazardous Waste.

1.2.51. Standby Time: 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 to complete (i.e., archeological chance find, UXO identification, species-at-risk find). Work stoppage due to encountering Suspected UXO during remedial excavation activities as determined by the on-call UXO Qualified Personnel and accepted by the Departmental Representative. In this case, the Departmental Representative would give direction and be responsible for the relocation of the Suspected UXO.

1.2.52. Subcontractor: see General Conditions.

1.2.53. Submit/Submittals: documents from the Contractor to the Departmental Representative as: required by Contract; stipulated in permit, certificate, approval, license, or any other form of authorization; by convention or industry practice. Submittals are final only after review and accepted in writing by Departmental Representative.

1.2.54. Substantial Performance: see General Conditions.

1.2.55. Superintendent: see General Conditions

1.2.56. Supplier: see General Conditions.

1.2.57. Suspected Unexploded Explosive Ordnance (UXO). Suspected UXO is defined as material that presents a potential explosive hazard and includes explosive ordnance that has been primed, fused, armed, or otherwise prepared for action and which has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded either by malfunction or design or for any other causes (NATO AAP-6). For the purposes of this Section, Suspected UXO includes UXO, discarded military munitions, exploded ordnance, Munitions Scrap, and explosive residue. Others may refer to these items as duds, blinds, munitions, explosives of concern, or hazardous explosive ordnance. The Contractor must remove Suspected UXO, under the supervision of UXO Qualified Personnel. The Contractor will only move Suspected UXO that is deemed safe to move by the UXO Qualified Personnel and as directed by the Departmental Representative.

1.2.58. Topsoil: Overburden excavated incidentally above Contaminated Soil Extents that is a surface organic layer to facilitate vegetation growth.

1.2.59. Transfer/Interim Storage Facility: an off-site facility specifically used to transfer or short term storage Contaminated Soil during off-site transport.

1.2.60. Treat: handling or processing of Contaminated Material in such a manner as to change the physical, chemical or biological character or composition of Contaminated Material such that it becomes Non-Contaminated Quality and is suitable for final Discharge or Disposal. Treatment includes filtering, bioremediation, thermal desorption, and incineration. Treatment does not include blending, mixing, or dilution. Material sent to a Treatment Facility must be Treated as follows:

1.2.60.1. Water must be Treated to meet requirements of a valid and subsisting Discharge Approval held by the Treatment Facility.

1.2.60.2. Soil must be Treated to meet (i) less than Waste Quality and (ii) requirements of the subsequent Disposal Facility.

1.2.61. Treatment Facility: an off-site facility specifically used to treat Contaminated Soil or Contaminated Water. Treatment Facility may treat soil, sediment, or water. All material Treated at a Treatment Facility must be considered Contaminated Material until final Discharge or Disposal.

1.2.62. Unexploded Explosive Ordnance (UXO) Qualified Personnel. The Contractor must retain an on-call UXO Qualified Personnel to monitor, identify, assess, screen, handle/segregate/store (when and where it is safe to do so), and photograph and document all potential UXO found during this work in accordance

with the Environmental Effects Determination. The qualifications for UXO Qualified Personnel are listed in Annex A to Chapter 3 of DND's Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000, dated 12 April 2011 (Appendix A to these Specifications). Only UXO Qualified Personnel or qualified military personnel may physically touch or handle UXO after determining a potential UXO is safe to move using accepted industry practices and procedures. UXO Qualified Personnel be on call for chance find callouts in the event Suspected UXO are identified during remedial excavation activities at the Work Site. UXO Qualified Personnel must follow at all times the requirements in Annex F to these Specifications.

1.2.63. Waste Quality: material that exceeds applicable Environmental Quality Criteria but is not Hazardous Waste.

1.2.64. Wastewater: Non-Contaminated Quality Water that is not Sewage.

1.2.65. Work: see General Conditions.

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. Daily Work Records: at the end of each shift Submit daily Work records, during on-site Work. Include:

1.3.2.1. Quantities for each Description of Work identified in the Unit Price Table and Change Orders.

1.3.2.2. Description of Work performed.

1.3.2.3. Current Site conditions.

1.3.2.4. General information including: date, time shift started and ended, Subcontractor(s) on site, Health and Safety items, and Environmental Protection items.

1.3.2.5. Signature of Superintendent.

1.3.3. Cash Flow: with each Progress Payment, Submit a cash flow forecast. Include:

1.3.3.1. 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.

1.3.3.2. Progress Payments will not be processed until cash flow has been accepted by the Departmental Representative.

1.3.4. 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.

1.3.5. Quality Management Plan: within 10 Working Days after Contract award, Submit a quality management plan. Include:

1.3.5.1. Details on planned review, inspection and testing to provide Quality Assurance and Quality Control for the Work.

1.3.5.2. Subcontractors responsible for review, inspection and testing.

1.3.5.3. Schedule of submittals of review, inspection and testing results.

1.3.6. 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 and sampling chains of custody.

1.3.7. Weigh Scale Certification: at least 5 Working Days prior to use, Submit a copy of the Measurement Canada, Weigh Scale Certification for any on-site or off-site weigh scale used during excavation, transportation, treatment or disposal.

1.3.8. Weigh Scale Slips: within 10 Working Days of measurement, Submit all on-site and off-site weigh scale slips for material.

1.4. Laws and Regulations

1.4.1. Generally, provincial, territorial and municipal laws, regulations, bylaws and other requirements do not apply to federal lands, works or undertakings. Soil, sediment, water or other materials that are removed from federal lands may become subject to provincial, territorial or municipal laws and regulations.

1.4.2. Provincial, territorial 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, territorial or municipal laws and regulations apply on Federal lands, activities or undertakings.

1.5. Green Requirements

1.5.1. 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.

1.5.2. Use materials/products containing highest percentage of recycled and recovered materials practicable – consistent with maintaining cost effective satisfactory levels of competition.

1.5.3. Adhere to waste reduction requirement for reuse or recycling of waste materials, not including soil or water, thus diverting materials from Landfill Facility.

1.6. Smoking Environment

1.6.1. Smoking on the Site is not permitted. Details pertaining to fire orders and regulations for contractors for CFB Esquimalt and CFAD Rocky Point smoking areas are provided in Annex E.

1.7. System of Measurement

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

1.8. Documents Required

1.8.1. Maintain 1 copy each of the following posted at the job Site:

1.8.1.1. General Conditions.

1.8.1.2. Drawings.
1.8.1.3. Specifications.
1.8.1.4. Addenda or other modifications to Contract.
1.8.1.5. Change orders.
1.8.1.6. Current Work schedule.
1.8.1.7. Reviewed and final Shop Drawings Submittals.
1.8.1.8. One set of record Shop Drawings and Specifications for "as-built" purposes.
1.8.1.9. Field and laboratory test reports.
1.8.1.10. Reviewed and accepted Submittals.
1.8.1.11. Health and Safety documents, including all daily toolbox meetings, Notice of Project, and utility clearances.
1.8.1.12. Environmental Protection Plan.
1.8.1.13. Final Meeting Minutes, Agendas and associated attachments.
1.8.1.14. Permits and other approvals.

1.9. Setting out of Work

1.9.1. Assume full responsibility for and execute complete layout of Work to locations, lines and elevations according to Drawings.
1.9.2. Provide devices needed to layout and construct Work.
1.9.3. Provide such services and devices in accordance with the Contract to facilitate Departmental Representative's inspection of Work.

1.10. Works Coordination

1.10.1. Coordinate Work of Subcontractors.
1.10.1.1. Designate one person to be responsible for review of Contract and Shop Drawings and managing coordination of Work.
1.10.2. Convene meetings between Subcontractors whose Work interfaces and ensure awareness of areas and extent of interface required.
1.10.2.1. Provide each Subcontractor with complete Drawings and Specifications for Contract, to assist them in planning and carrying out their respective work.
1.10.2.2. Develop coordination drawings when required, illustrating potential interference between Work of various trades and distribute to affected parties.
1.10.2.3. Facilitate meeting and review coordination drawings. Ensure Subcontractors agree and sign off on coordination drawings.
1.10.2.4. Publish minutes of each meeting.
1.10.2.5. Submit a copy of coordination drawings and meeting minutes as directed by the Departmental Representative.
1.10.3. Submit Shop Drawings and order of prefabricated equipment or rebuilt components only after coordination meeting for such items has taken place.
1.10.4. Work coordination:
1.10.4.1. Ensure cooperation between trades in order to facilitate general progress of Work and avoid situations of spatial interference.

1.10.4.2. 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.

1.10.4.3. Ensure disputes between Subcontractors are resolved.

1.10.5. Failure to coordinate Work is responsibility of Contractor.

1.11. Record Keeping

1.11.1. Advisory: Contractual correspondence from the Departmental Representative to the Contractor. Does not include Change Documents. To be sequentially numbered. Include cross references to applicable Request For Information. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any Advisory.

1.11.2. Request For Information: Contractual correspondence from Contractor to the Departmental Representative. Includes Submittals. Does not include Change Documents. Must be sequentially numbered. Include cross references to applicable Advisory. Status of the Contractor, including the function of Prime Contractor, must not change by reason of any Request For Information.

1.11.3. Maintain adequate records to support information provided to Departmental Representative.

1.11.4. Maintain asbestos waste shipment records or other Hazardous Waste Manifests for minimum of 3 years from date of shipment or longer period required by applicable law or regulation.

1.11.5. Maintain bills of ladings for minimum of 300 Working Days from date of shipment or longer period required by applicable law or regulation.

1.12. Change Documents

1.12.1. Change Documents do not relieve Contractor of any obligation.

1.12.2. Change Documents do not change the Contractor’s responsibility for methods, means and sequences.

1.12.3. Change Documents do not change by any reason the status of the Contractor, including the function of Prime Contractor or as supervisor.

1.12.4. Change Documents include:

1.12.4.1. Change Order: There may be a change 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.

1.12.4.2. 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.

1.12.4.3. Extension of Time on Contracts: There may be a change to the completion of the Work by reason of an Extension of Time on Contracts. No increase to the Contract Amount by reason of any Extension of Time on Contracts.

1.12.4.4. 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.

1.13. Inspection

1.13.1. 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 off-site Facilities.

1.13.2. Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative or applicable law.

1.13.3. 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.

1.13.4. 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.

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

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. Pre-Mobilization Submittals will be paid in accordance with lump sum price established for all Preconstruction Meetings, final design, 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. Also includes Preconstruction Condition Survey and Preconstruction As-Built Documents.

1.1.2. 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.

1.1.3. Site Preparation will be paid in accordance with lump sum price established to prepare the Site for planned construction works. Includes as required: clearing and grubbing, invasive plant species removal and disposal from work areas, water diversion and associated infrastructure and equipment, demolition, temporary removal of existing infrastructure, utility location, rerouting, and protection, and construction of temporary on-site access roads. Also includes removal of any incidental or generated material. Removal of mature trees to be avoided, where possible, in accordance with the Environmental Effects Determination.

1.1.4. 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. No Standby Time charges or increases to Contract Amount or Extension of Time for completion of the Work for reviews, sampling, or other work conducted by the Departmental Representative that have time allowances in accordance with the Contract. Contractor is to provide a minimum of 24 hours notice to the Departmental Representative prior to Standby Time being incurred.

1.1.5. Site Restoration will be paid in accordance with the lump sum price established to restore the Site to make suitable for post-Work use according to Drawings. Includes re-establishment of pre-existing infrastructure, final grading, topsoil reuse or provide and placement, revegetation, and deconstructing and removal from Site all temporary facilities and removal of any incidental or generated material.

1.1.6. 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.

1.1.7. Closeout Submittals will be paid in accordance with lump sum price established for Final Site Inspection (for Certificate of Completion purposes), Closeout Meetings, Postconstruction Condition Survey and final As-Built Documents as directed by the Departmental Representative.

1.2. Definitions

1.2.1. See 01 11 55.

1.3. Action and Informational Submittals

1.3.1. Preconstruction As-Built Documents: at least 5 Working Days prior to commencing any disturbance, Submit drawings identifying all infrastructure, including utilities, on the Site. Update drawings as directed by the Departmental Representative.

1.3.2. Preconstruction Condition Survey: at least 5 Working Days prior to commencing any disturbance, Submit a report by Contractor's Qualified Professional Surveyor documenting property lines, original site grades (surface elevations) and condition of buildings, utilities, roadways, pathways, landscaping, significant vegetation, and other infrastructure both on-site and adjacent sites that may be potentially impacted by the Work.

1.3.3. 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 directed by the Departmental Representative and aggregating Contract Amount.

1.3.4. As-Built Documents: within 10 days of completing site Work, provide Drawings showing all Work, including infrastructure, utilities, excavation limits, backfill material limits and compaction, final grades, and any other improvements or reinstatements.

1.3.5. Post-construction Condition Survey: within 10 days of completing site Work, Submit a report by Contractor's Qualified Professional Surveyor documenting property lines, original site grades (surface elevations) and condition of buildings, utilities, roadways, pathways, landscaping, significant vegetation, and other infrastructure both on-site and adjacent sites that may be potentially impacted by the Work.

1.3.6. Closeout Documents: within 20 Working Days of Final Completion of Site Restoration, Submit Completion Documents.

1.4. Mobilization and Demobilization

1.4.1. Move all personnel, equipment, supplies, and incidentals to and from the Site.

1.5. Site Preparation

1.5.1. Protection of features:

1.5.1.1. Protect existing features with temporary barriers and enclosures as required by applicable local regulations.

1.5.1.2. Protect natural and man-made features required to remain undisturbed. Protect existing trees from damage unless otherwise required or located in an area to be occupied by new construction.

1.5.1.3. Protect buried utilities that are required to remain undisturbed or in continuous operation during the Work, as identified on Drawings.

1.5.1.4. Protect features from surface water damage by temporary structures to divert flow as appropriate.

1.5.2. Protection of Monitoring Wells

1.5.2.1. Protect all monitoring wells unless specifically confirmed by Departmental Representative.

1.5.2.2. Protect all monitoring wells outside area of surface disturbance, including Debris Unit Extents.

1.5.2.3. Protect monitoring wells outside of the Debris Unit Extents, as identified in Contract Documents.

1.5.2.4. Replace protected monitoring wells damaged by Work using methods, means, and sequences as directed by the Departmental Representative at Contractor's expense.

1.5.2.5. Decommission the monitoring well within area of surface disturbance (MW17-06), or as otherwise agreed to by Departmental Representative. Decommission in accordance with methods in BC *Groundwater Protection Regulation*. Decommission may include complete removal of all parts of a monitoring well situated entirely within excavation extents.

1.5.3. Security and Safety:

1.5.3.1. Provide safety measures to ensure worker and public safety.

1.5.3.2. Ensure Site is secure during on-site Work, provide, install, and remove fencing, temporary hoarding, and other security measures as appropriate. Provide on-site personnel security 24 hours/ day 7 days/week as appropriate or in accordance with Contract.

1.5.3.3. Site including all construction areas should be secured with locked fencing, temporary hoarding and security personnel as required.

1.6. Existing Conditions and Services

1.6.1. Preconstruction Condition Survey to be completed by Contractor’s Qualified Professional Surveyor.

1.6.2. Size, depth and location of existing utilities and structures as provided in Contract documents are for guidance only. Completeness and accuracy are not guaranteed.

1.6.3. 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 (i.e., 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.

1.6.4. Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.
1.6.5. Maintain and protect from damage all utilities and structures encountered, unless Work involves temporarily breaking, rerouting, or connecting existing utilities.
1.6.6. Where Work requires temporarily breaking, rerouting, or connecting into existing utilities, obtain permission from both users and utility companies of intended interruption of services, and carry out Work at times determined by the authorities having jurisdiction.
1.6.7. 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.
1.6.8. Provide temporary services as required to maintain critical systems.
1.6.9. Where unknown utilities are encountered, immediately verbally notify Departmental Representative and confirm findings in writing.

1.7. As-Built Documents

1.7.1. The Departmental Representative will provide electronic copies of the Construction Documents as per the Special Instructions to Bidders. Electronic copies of data and drawings in their native format and paper copies are available on request.
1.7.2. Pre and post-construction Condition Survey to be completed by Contractor's Qualified Professional Surveyor.
1.7.3. As Work progresses, maintain accurate records to show all deviations from the Contract. Note changes as they occur on as-built Specifications, Drawings and Shop Drawings.
1.7.4. Drawings and Shop Drawings: legibly mark each item to record actual construction, including:
1.7.4.1. Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
1.7.4.2. Field changes of dimension and detail.
1.7.4.3. Changes made by change orders.
1.7.4.4. Details not on original Drawings.
1.7.4.5. References to related Shop Drawings and modifications.
1.7.5. Contract Specifications: legibly mark each item to record actual workmanship of construction, including:
1.7.5.1. Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
1.7.5.2. Changes made by addenda and change orders.
1.7.6. As-built information:
1.7.6.1. Record changes in red ink.
1.7.6.2. Mark on 1 set of Drawings, Specifications and Shop Drawings at Final Completion of project and, before final inspection, neatly transfer notations to second set.
1.7.6.3. Submit 1 set in editable AutoCAD file format with all as-built information.

1.7.6.4. Submit all sets as directed by the Departmental Representative.

1.7.7. As required, surveying to be completed by Contractor's Qualified Professional Surveyor for as-built documents.

1.8. Not Used

1.9. On-site Access Roads

1.9.1. Maintain on-site access roads as follows:

1.9.1.1. Obtain permission to use existing on-site access roads or to construct temporary roads.

1.9.1.2. Maintain and clean roads for duration of Work, keep dry and free of mud.

1.9.1.3. Repair damage incurred from use of roads.

1.9.1.4. Provide photographic documentation of roads used by construction vehicles before, during and after Work.

1.9.1.5. Clean on-site access roads as directed by the Departmental Representative.

1.10. Site Restoration

1.10.1. Final site grades must be within 5 cm of pre-existing grades before Work commenced, unless otherwise specified.

1.10.2. Re-establish pre-existing drainage, unless otherwise specified.

1.10.3. Re-establish topsoil reusing existing stripped topsoil only under approval of the Departmental Representative. Import topsoil (approved by Departmental Representative) as required. Imported topsoil must, at a minimum, contain: between 50% and 70% sand, less than 25% silt and clay, and between 4% and 15% organic matter (dry weight basis) unless otherwise identified according to Drawings. Topsoil to be placed to a minimum thickness of 0.3 m and seeded and planted with native plants/seed mix as referenced in the Environmental Effects Determination.

1.10.4. Clean permanent access roads of contamination resulting from project activity as required or as directed by Departmental Representative, with no increases to Contract Amount or Extension of Time for completion of the Work.

1.10.5. Upon Final Completion of Work, remove Non-Contaminated Quality Soil and Debris, trim slopes, and correct defects as directed by the Departmental Representative.

1.10.6. 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.

1.10.7. Reinstate pre-existing utilities and other infrastructure to original location and condition, meeting current standards, codes, and other requirements, unless otherwise identified according to Drawings or as directed by the Departmental Representative.

1.10.8. Reinstate surface to pre-existing conditions, including surface material (e.g., vegetation, gravel, pavement), unless otherwise identified according to Drawings or as directed by the Departmental Representative.

1.10.9. Seeding, to be consistent with *Canadian Landscape Standards* for lawns or current version of BC Ministry of Transportation and Infrastructure *Standard Specifications for Highway Construction* unless otherwise identified according to Drawings.

1.11. Completion Documents

1.11.1. Submit as directed by the Departmental Representative, a written certificate that the following have been performed:

1.11.1.1. Work has been completed, and inspected and accepted by the Departmental Representative, in accordance with the Contract.

1.11.1.2. Treatment and Disposal of treatable soils have been completed and Disposal of all other soils has been completed.

1.11.1.3. Damage has been repaired, deficiencies have been completed, missing items have been provided, and non-conformance has been corrected, in the opinion of the Departmental Representative.

1.11.1.4. Contractor's Qualified Professional report documenting backfilling has met all requirements of the Contract.

1.11.2. Defective products will be rejected, regardless of previous inspections. Replace defective products.

1.11.3. Prepare all documentation required as part of any permits or other authorizations obtained or otherwise the responsibility of the Contractor.

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. Not Used.

1.2. Definitions

1.2.1. See 01 11 55.

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. Submit revised minutes within 2 Working Days of receiving comments by Departmental Representative.

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 directed 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 directed by the Departmental Representative.

1.4.4. Provide physical space and make arrangements for meetings, or arrange for teleconference meetings, as directed 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.

1.5. Preconstruction (Kickoff) 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. Contractor responsible for providing meeting minutes.

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 including Master Plan.

1.5.4.3. Schedule of Submittals including premobilization Submittals including Insurance, Contract Security, Health and Safety Plan, and Environmental Protection Plan.

1.5.4.4. Requirements for temporary facilities.

1.5.4.5. Site security, Health and Safety, Environmental Protection, coordination with other Site users including consultants and other contractors.

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.
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 effect on construction schedule and on Final Completion date.
1.6.3.18. Other business.
1.6.4. Submit draft Progress Meeting Minutes for review and comment by Departmental Representative. Incorporate comments into final Progress Meeting Minutes.

1.7. Toolbox Meetings

1.7.1. During the course of the Work, schedule daily toolbox (tailgate) 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, including hazards, mitigation measures, and emergency procedures.
1.7.3.2. Review previous relevant incident or near-miss reports, both from Site and other Sites.
1.7.3.3. Coordination activities, and roles and responsibilities, required between Contractor, Subcontractor(s), Departmental Representative, other contractor(s) including environmental consultant, site users, and protection of general public and off-site resources.
1.7.3.4. Health and Safety items, including PPE requirements.
1.7.3.5. Environmental Protection items, including emergency equipment.

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. Inspection include confirmation of the condition of the monitoring wells located outside of the area of surface disturbance.
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.
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. Not Used.

1.2. Definitions

1.2.1. See 01 11 55.

1.3. Action and Informational Submittals

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

1.3.2. 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 are compliant with Schedule Requirements.

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.

1.4.5. Include Work sequencing description and schedule:

1.4.5.1. Work Sequencing description must describe methods, means, and sequences to perform each major task.

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

1.4.5.3. Major tasks includes all items identified on Unit Price Table.

1.5. Master Plan

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

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 as updates to 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 Weekly Progress 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 accepted 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

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. Not Used.

1.2. Definitions

1.2.1. See 01 11 55.

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 Contractor's Qualified Professional.

1.4. General

1.4.1. Submission details to be commensurate for type of Work and Site conditions. Details depend on Work performed and Contractor's methods, means, and sequences.

1.4.2. Contractor’s responsibility for errors and omissions in Submittals is not relieved by the Departmental Representative’s review of Submittals.

1.4.3. Notify Departmental Representative in writing at time of Submittals, identifying deviations from requirements of Contract and stating reasons for deviations.

1.4.4. 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.

1.4.5. Make any changes in Submittals which Departmental Representative requires to be in accordance with the Contract and resubmit.

1.4.6. Notify Departmental Representative in writing, when resubmitting, of any revisions other than those directed by the Departmental Representative.

1.4.7. Do not proceed with Work until relevant Submittals are finalized and have been accepted.

1.4.8. 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.

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

1.4.10. Verify field measurements and affected adjacent Work are coordinated.

1.4.11. 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.

1.4.12. Keep one final copy of each Submittal on site.

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. No Standby Time charges or increases to Contract Amount or Extension of Time for Departmental Representative's review.

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. Submittals must include:

1.5.4.1. Date and revision dates.

1.5.4.2. Project title and number.

1.5.4.3. Name and address of:

1.5.4.3.1. Subcontractor.

1.5.4.3.2. Supplier.

1.5.4.3.3. Manufacturer.

1.5.4.4. Signature of Superintendent, certifying approval of Submittals, verification of field measurements and in accordance with the Contract.

1.5.4.5. Contractor's Qualified Professional to sign and seal Submittals in accordance with the Contract or as required by the nature of the Submittal. Submittals to include at a minimum 1 hard copy of original ink sealed document.

1.5.4.6. Details of appropriate portions of Work as applicable.

2. PART 2 - PRODUCTS

2.1. Submittals Summary

2.1.1. The following table provides a summary and timing of expected submittals.

Submittal	Specification Section	Timing
Pre-Mobilization Submittals	01 11 00 1.10.2	At least 10 Working Days of Contract Award
Site-specific Health and Safety Plan and Emergency Procedures	01 11 00 1.10.3	Prior to mobilization
Completion of Work	01 11 00 1.10.5	Completion of the Work
Permits	01 11 55 1.3.1	At least 10 Working Days prior to mobilization to the Site.
Daily Work Records	01 11 55 1.3.2	At end of each shift during on-site work.
Cash Flow Forecast	01 11 55 1.3.3	With each Progress Payment.
Meeting Minutes	01 11 55 1.3.4	At least 5 Working Days prior to relevant Work commencing

Quality Management Plan	01 11 55 1.3.5	Within 10 Working Days after Contract award.
Weigh Scale Certification	01 11 55 1.3.7	At least 5 Working Days prior to use.
Weigh Scale Slips	01 11 55 1.3.8	Within 10 Working Days of measurement.
Preconstruction As-Built Documents	01 25 20 1.3.1	At least 5 Working Days prior to commencing any disturbance.
Preconstruction Condition Survey	01 25 20 1.3.2	At least 5 Working Days prior to commencing any disturbance.
Breakdown of Lump Sum Prices	01 25 20 1.3.3	At least 5 Working Days prior to submitting the first Progress Payment.
Post-construction Condition Survey	01 25 20 1.3.5	Within 10 days of completing site Work.
Closeout Documents	01 25 20 1.3.6	Within 20 Working Days of Final Completion of Site Restoration.
Preconstruction Meeting Minutes	01 31 19 1.3.1	Within 2 Working Days of the Preconstruction Meeting.
Progress Meeting Minutes	01 31 19 1.3.2	Within 2 Working Days of a Progress Meeting.
Information for Progress Meetings	01 31 19 1.3.3	At least 2 Working Days prior to scheduled Progress Meetings.
Final Site Inspection	01 31 19 1.3.4	Within 2 Working Days of the Final Site Inspection.
Closeout Meetings	01 31 19 1.3.5	Within 2 Working Days of the Closeout Meeting.
Master Plan	01 32 16.07 1.3.1	Within 10 Working Days after Contract award.
Project Schedule and Updates	01 32 16.07 1.3.2	As appropriate.
Shop Drawings	01 33 00 1.3.1	At least 5 Working Days prior to commencing applicable Work.
Contaminated Soil and Water Management Plan	01 35 13.43	Within 10 Working Days after Contract award and prior to mobilization to Site.
Environmental Protection Plan	01 35 43 1.3.1	Within 10 Working Days after Contract award and prior to mobilization to Site.
Spill and Response Report	01 35 43 1.3.3	For all Spills.
Site Layout	01 52 00 1.3.1	Within 10 Working Days after Contract award and prior to mobilization to Site.
Signs	01 52 00 1.3.2	At least 5 Working Days prior to posting.

Contaminated Water Treatment Provision Plan	02 61 00.02 1.1.1	Within 10 Working Days after Contract award and prior to mobilization to Site.
Off-site Contaminated Water Treatment Facility Plan	02 61 00.02 1.1.2	At least 10 days prior to transporting material to a Treatment Facility.
Certificate of Treatment	02 61 00.02 1.3.3	Within 30 Working Days of treatment at Off-site Contaminated Water Treatment Facility Facility.
Excavation and Backfilling Plan	02 61 00.03 1.3.1	Within 10 Working Days after Contract award and prior to mobilization to Site.
Import Backfill Material Quality	02 61 00.03 1.3.2	At least 5 Working Days prior to bringing material on site.
Import Backfill Samples	02 61 00.03 1.3.3	At least 10 Working Days prior to bringing material to Site.
Temporary Hoarding and Fencing	02 61 00.03 1.3.4	At least 5 Working Days prior to installation.
Contaminated Sites Disposal Plan	02 61 00.04 1.3.1	Within 10 Working Days after Contract award and prior to mobilization to Site.
Certificate of Disposal	02 61 00.04 1.3.2	Within 30 Working Days of disposal at Disposal Facility.
Contaminated Sites Transportation Plan	02 61 00.06 1.3.1	Within 10 Working Days after Contract award and prior to mobilization to Site.
Certificate of Seaworthiness	02 61 00.06 1.3.2	Prior to barge shipments.
Transport Manifests	02 61 00.06 1.3.3	Within 5 Working Days of off-site transport.

2.1.2.

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. Not Used.

1.2. Definitions

1.2.1. See 01 11 55.

1.3. Action and Informational Submittals

1.3.1. Contaminated Soil and Water Management Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit methods, means, and sequences for Contaminated Soil and Contaminated Water Management on site 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

1.3.1.1. Personnel and equipment decontamination.

1.3.1.2. Segregation of different Classifications.

1.4. Sequencing and Scheduling

1.4.1. Commence Work involving contact with Contaminated or potentially Contaminated Soil or Water after all applicable Environmental Protection procedures (including those identified in Contaminated Soil and Water 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. Drums

1.5.1. Provide, maintain, and operate drum staging pad as required.

1.5.2. 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.

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

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 Soils 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. Equipment Decontamination Facility

1.7.1. Prior to commencing Work involving equipment contact with potentially Contaminated Soil, construct equipment decontamination facilities to accommodate the largest potentially contaminated equipment on site.

1.7.2. Collect and contain equipment decontamination wastewater and sediment. Transfer collected wastewater and sediment to treatment facilities accepted by Departmental Representative.

1.8. Equipment Decontamination

1.8.1. 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.

1.8.2. If required, as directed 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 directed by the Departmental Representative to determine effectiveness of decontamination.

1.8.2.1. Take appropriate measures necessary to minimize drift of mist and spray during decontamination including provision of wind screens.

1.8.2.2. Collect decontamination wastewater and sediment which accumulate in decontamination location. Treat collected wastewater as Contaminated Water. Manage decontamination sediment as Waste Quality.

1.8.3. 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.

1.8.4. Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.

1.9. Progress Decontamination

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

1.10. Final Decontamination

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

1.11. Contaminated Soil and Water Management

1.11.1. Remove all Contaminated Soil and Water within Work areas in accordance with the Contract and as directed by the Departmental Representative. Remove Non-Contaminated Quality Soil and Water incidental to the Work or as directed by the Departmental Representative.

1.11.2. Material and Water will be Classified by the Departmental Representative based on in-situ results, field observations, field measurements, and/or ex-situ characterization. Departmental Representative responsible for Classification. Contractor cannot re-Classify material.

1.11.3. Handle (including Excavate, Transport, Treat, and Dispose) material separately into the classifications in accordance with the Contract or as directed by the Departmental Representative. Take necessary precautions to avoid mixing of different classifications. Do not blend, or mix and dilute, different material Classifications.

1.11.4. Contractor responsible for Transportation, Treatment, and Disposal based on Classification by Departmental Representative. Contractor responsible for material blended, or mixed and diluted, based on re-Classification by Departmental Representative. No increases to Contract Amount or Extension of Time due to material blended, or mixed and diluted.

1.11.5. Material characterization (e.g., sampling and testing) of parameters additional to information provided in Contract as required by the Contractor (e.g., for Transportation, Treatment Facility or Disposal Facility purposes) responsibility of Contractor.

1.11.6. Material segregation additional to Contract as required for Transportation, Treatment Facility or Disposal Facility responsibility of Contractor.

1.12. Soil Stockpile Construction

1.12.1. Stockpile material within work area in locations identified by Departmental Representative.

1.12.2. Provide, maintain, and operate temporary storage/stockpiling facilities as per Contractor’s Site Layout.

1.12.3. Segregate Contaminated Soil into separate Classifications, and segregate Contaminated Soil from Non-Contaminated Quality Soil, into separate stockpiles to prevent cross-contamination.

1.12.4. Prevent precipitation into Stockpiles 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 directed by the Departmental Representative.

1.12.5. Securely fasten covers over stockpiled material until material is loaded for transport.

1.12.6. Store excavated Non-Contaminated Quality Soil only on Non-Contaminated Quality surface areas. Ensure no contact between Non-Contaminated Quality Soil and Contaminated Soil.

1.12.7. Store excavated Contaminated Soil and Non-Contaminated Soil in temporary stockpiles.

1.12.7.1. Install impermeable liner (e.g., asphalt or minimum 20 mil (0.5mm) polyethylene) below proposed stockpile locations to prevent contact between stockpile material and ground.

1.12.7.2. 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. Cover to be impermeable (eg minimum 5 mil polyethylene) and securely fashioned to prevent blowing off.

1.12.7.3. Prevent Non-Contaminated Quality Water, including surface runoff water, from coming into contact with Contaminated Soil stockpiles.

1.12.8. Segregate different suspect material in discrete stockpiles to facilitate ex-situ characterization for Classification as directed by the Departmental Representative.

1.12.9. Assist Departmental Representative in collection of stockpile samples for ex-situ characterization. Ex-situ characterization may take up to 5 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 Samples results provided within 5 Working Days, not counting the day the sample is collected.

1.12.10. Do not remove Contaminated Soil from stockpiles until ex-situ characterization completed and as directed by Departmental Representative.

1.12.11. Stockpile to be located a minimum of 30 m from the marine environment in accordance with the Environmental Effects Determination.

1.13. Stockpile or On-site Soil Treatment Facility Loading

1.13.1. Place Contaminated Soil in Stockpiles or On-site Soil Treatment Facility in locations and thicknesses according to Contract.

1.13.2. Soil cannot be placed within 1.5 m of the berms or sump to maintain adequate drainage and to avoid damaging the liner or geotextile material

1.13.3. Mechanical equipment cannot work within 1.5 m of the sump or berms.

1.13.4. Trucks are only to operate in Stockpiles or On-site Soil Treatment Facility when there is a minimum of 1m of soil present or as directed by the Departmental Representative. Trucks should minimize or eliminate turning while in facility. Trucks cannot dump directly on liner but only on areas with 1m of soil present and the dumped soil must remain 1.5m from the sump and berms when placed.

1.13.5. Tracked equipment is only to operate in Stockpiles or On-site Soil Treatment Facility when there is a minimum of 0.5m of soil present or as directed by the Departmental Representative.

1.13.6. Be responsible for, and make good repairs of, any damage to Stockpiles or On-site Soil Treatment Facility caused by placement or amendment.

1.14. Debris Management

1.14.1. Remove all Debris within Work areas in accordance with the Contract and as directed by the Departmental Representative.

1.14.2. Debris to be cleaned to meet facility acceptance requirements for recycling or disposal. Contaminated Material and waste water produced by Debris cleaning shall be managed as Contaminated Soil and Contaminated Water.

1.14.2.1. Debris cleaning to be conducted such that Contaminated Material and Contaminated Water is contained. Contractor is responsible to clean up any spills of Contaminated Material or Contaminated Water to the ground surface, including excavation, transport, disposal of spilled materials and affected soil and surface restoration of the spill area.

1.14.3. Handle (including Excavate, Transport, Treat, and Dispose or Recycle) Debris separately in accordance with the Contract or as directed by the Departmental Representative. Take necessary precautions to avoid mixing of different classifications. Do not blend, or mix and dilute, different material Classifications.

1.14.4. Contractor responsible for Transportation, Treatment, and Disposal or Recycling based on Classification by Departmental Representative. Contractor responsible for material blended, or mixed and diluted, based on re-Classification by Departmental Representative. No increases to Contract Amount or Extension of Time due to material blended, or mixed and diluted.

1.14.5. Material characterization (e.g., sampling and testing) of parameters additional to information provided in Contract as required by the Contractor (e.g., for Transportation, Treatment Facility or Disposal Facility purposes) responsibility of Contractor.

1.14.6. Material segregation additional to Contract as required for Transportation, Treatment Facility or Disposal Facility responsibility of Contractor.

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

GENERAL

PSPC Update on Asbestos Use

Effective April 1, 2016, all Public Services and Procurement Canada (PSPC) contracts for new construction and major rehabilitation will prohibit the use of asbestos-containing materials.

COVID 19

All contractors shall follow Canadian Construction Association COVID-19 - Standardized Protocols for All Canadian Construction Sites, Provincial Regulations, and Federal Site Specific COVID 19 Procedures.

1.1. RELATED SECTIONS

1.1.1. Section 01 00 10 General Instructions.
1.1.2. Section 01 33 00 - Submittal Procedures.
1.1.3. Section 01 51 00 – Temporary Utilities
1.1.4. Section 01 56 00 – Temporary Barriers & Enclosures
1.1.5. This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.2. REFERENCES

1.2.1. Government of Canada
Canada Labour Code – Part II
Canada Occupational Safety and Health Regulations
1.2.2. National Building Code of Canada (NBC)
Part 8, Safety Measures at Construction and Demolition Sites
1.2.3. The Canadian Electric Code (as amended)
1.2.4. Canadian Standards Association (CSA) as amended:
CSA Z797-2009 Code of Practice for Access Scaffold
CSA S269.1-1975 (R2003) Falsework for Construction Purposes
CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures
CSA Z1006-10 Management of Work in Confined Spaces
CSA Z462 Workplace Electrical Safety Standard
1.2.5. National Fire Code of Canada 2010 (as amended):
Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
1.2.6. American National Standards Institute (ANSI):
ANSI A10.3, Operation – Safety Requirements for Powder-Actuated Fastening Systems

1.2.7. Health Canada/Workplace Hazardous Materials Information System (WHMIS)
Material Safety Data Sheets (MSDS).
1.2.8. Canadian Construction Association
COVID-19 Standardized Protocols for All Canadian Construction Sites
1.2.9. Province of British Columbia
Workers Compensation Act Part 3 – Occupation Health and Safety
Occupational Health and Safety Regulations

1.3. WORKERS' COMPENSATION BOARD COVERAGE

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

1.4. COMPLIANCE WITH REGULATIONS

1.4.1. Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.
1.4.2. Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but no limited to, the following:
Primary requirements:
.1 Contractor's safety policy.
.2 Identification of applicable compliance obligations.
.3 Definition of responsibilities for project safety organization chart for project.
.4 General safety rules for project including COVID 19 protocols.
.5 Job-specific safe work procedures.
.6 Inspection policy and procedures.
.7 Incident reporting and investigation policy and procedures.
.8 Occupational Health & Safety Committee / Representative procedures.
.9 Occupational Health & Safety meetings.
.10 Occupational Health & Safety communications and record keeping procedures.

1.4.3. 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 site work.
1.4.4. List hazardous materials to be brought on site as required by work.
1.4.5. Indicate Engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
1.4.6. Identify personal protective equipment (PPE) to be used by workers.
1.4.7. Identify personnel and alternates responsible for site safety and health.
1.4.8. Identify personnel training requirements and training plan, including site orientation for new workers.
1.4.9. 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.
1.4.10. Revise and update Health and Safety Plan as required and re-submit to the Departmental Representatives.
1.4.11. Departmental Representative's review: the review of Site-Specific Health & Safety Plan by PSPC shall not relieve the Contractor of responsibility for errors or omissions in final Site Specific Health and Safety Plan or of responsibility for meeting all requirements of construction and contract documents.

1.5. GENERAL REQUIREMENTS – SITE SPECIFIC SAFETY PLAN (SSSP/HASP)

1.5.1. Develop written site Specific Safety Plan based on hazard assessment prior to commencing any site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
1.5.2. Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.6. SUBMITTALS

1.6.1. Submit in accordance with Section 01 33 00 - Submittal Procedures.
1.6.2. Work effected by submittal shall not proceed until review is complete.
1.6.3. Submit Site Specific Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

Results of site-specific safety hazard assessment.
Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

1.6.4. Submit digital copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative.
1.6.5. Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
1.6.6. Submit copies of incident and accident reports.
1.6.7. Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 10 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 10 days after receipt of comments from Departmental Representative.
1.6.8. Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
1.6.9. Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
1.6.10. On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.7. FILING OF NOTICE

1.7.1. The General Contractor is to complete and submit a Notice of Project as required by Provincial authorities.
1.7.2. Provide copies of all notices to the Departmental Representatives.

1.8. SAFETY ASSESSMENT

1.8.1. Perform site specific safety hazard assessment related to project.

1.9. MEETINGS

1.9.1. Attend health and safety pre-construction meetings and all subsequent meetings call by the Departmental Representative.

1.10. RESPONSIBILITY

1.10.1. Assume responsibility as the Prime Contractor for work under this contract.
1.10.2. Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
1.10.3. Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, territorial and

local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.11. COMPLIANCE REQUIREMENTS

1.11.1. Comply with the CCA COVID-19 – Standardized Protocols for All Canadian Construction Sites.
1.11.2. Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations
1.11.3. Comply with the B.C. Workers Compensation Act and Worksafe B.C. Occupational Health and Safety Regulations.
1.11.4. The most stringent will apply.

1.12. UNFORSEEN HAZARDS

1.12.1. When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Safety Officer and follow procedures in accordance with Acts and Regulations of Territory having jurisdiction and advise Departmental Representative verbally and in writing.

1.13. HEALTH AND SAFETY CO-ORDINATOR

1.13.1. The Health and Safety Coordinator must:
1.13.2. Be responsible for completing all health and safety training, ensure that personnel that do not successfully complete the required training are not permitted to enter the site to perform the work.
1.13.3. Be responsible for implementing, daily enforcing, and monitoring the Site Specific Safety Plan (SSSP) or Health and Safety Plan (HASP)
1.13.4. Be on site during execution of work.

1.14. POSTING OF DOCUMENTS

1.14.1. Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Territory having jurisdiction, and in consultation with Departmental Representative.

1.15. CORRECTION OF NON-COMPLIANCE

1.15.1. Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

1.15.2. Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

1.15.3. Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.16. WORK STOPPAGE

1.16.1. Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.17. POWDER ACTUATED DEVICES

1.17.1. Use powder actuated devices only after receipt of written permission from Departmental Representative.

1.18. PROJECT / SITE CONDITIONS

1.18.1. Work at site will involve contact with:

.1 Multi-employer work site.
.2 Federal employees and general public.
.3 Working from heights.
.4 Working in open exposed to unpredictable weather.

1.19. UTILITY CLEARANCES

1.19.1. The Contractor is solely responsible for all utility detection and clearances prior to starting the Work. All utilities must be located prior to excavation through a BC One call and a private utility location company to ensure all underground utilities are properly located.

1.19.2. The Contractor will not rely solely upon the Reference Drawings or other information provided for utility locations.

1.20. REGULATORY REQUIREMENTS

1.20.1. Comply with specified codes, acts, bylaws, standards, and regulations to ensure safe operations at site (the most stringent will apply).

1.20.2. 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 advise on the course of action to be followed.

1.21. WORK PERMITS

1.21.1. Obtain specialty permit(s) related to project before start of work.

1.22. EMERGENCY PROCEDURES

1.22.1. List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e., names / telephone numbers) of:

.1 Designated personnel from own company.
.2 Regulatory agencies applicable to work and as per legislated regulations.
.3 Local emergency resources.
.4 Departmental Representatives.

1.22.2. Include the following provisions in the emergency procedures:

.1 Notify workers and the first-aid attendant, of the nature and location of the emergency
.2 Evacuate all workers safely.
.3 Check and confirm the safe evacuation of all workers.
.4 Notify the fire department or other emergency responders.
.5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
.6 Notify Departmental Representatives.

1.22.3. Provide written rescue / evacuation procedures as required for, but not limited to:

.1 Work at high angles.
.2 Work in confined spaces or where there is a risk of entrapment.
.3 Work with hazardous substances.
.4 Underground work.
.5 Work on, over, under, and adjacent to water.
.6 Workplaces where there are persons who required physical assistance to be moved.

1.22.4. Design and mark emergency exit routes to provide quick and unimpeded exit.

1.23. HAZARDOUS PRODUCTS

1.23.1. 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 Representatives and in accordance with the Canada Labour Code.

1.23.2. Where use of hazardous and toxic products cannot be avoided:

.1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as per Section 01 33 00.

.2 In conjunction with Departmental Representative, schedule to carry out work during "off hours" when tenants have left the building.

.3 Provide adequate means of ventilation in accordance with Section 01 51 00.

.4 The contractor shall ensure that the product is applied as per manufacturers recommendations.

.5 The contractor shall ensure that only pre-approved products are brought onto the work site in an adequate quantity to complete the work.

1.24. ASBESTOS HAZARD

1.24.1. Carry out any activities involving asbestos in accordance with applicable Provincial Regulations.

1.24.2. Removal and handling of asbestos will be performed as indicated on the PSPC website.

1.25. OVERLOADING

1.25.1. Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

1.26. CONFINED SPACES

1.26.1. Carry out with confined spaces in compliance with Provincial Regulations.

1.27. POWDER-ACTUATED DEVICES

1.27.1. Use powder-actuated devices in accordance with ANSI A10.3 only after receipt of written permission from the Departmental Representative.

1.28. FIRE SAFETY AND HOT WORK

1.28.1. Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.

1.28.2. Hot work includes cutting / melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which procedures sparks.

1.29. FIRE SAFETY REQUIREMENTS

1.29.1. Store oily / paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site daily.

1.29.2. Handle, store, use, and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.29.3. Portable gas and diesel fuel tanks are not permitted on most federal work site. Approval from the DR is required prior to any gas or diesel tank being brought onto the work site.

1.30. FIRE PROTECTION AND ALARM SYSTEM

1.30.1. Fire protection and alarm shall not be:

.1 Obstructed.
.2 Shut off.
.3 Left inactive at the end of a working day or shift.

1.30.2. Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.

1.30.3. Be responsible / liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

1.31. UNFORESEEN HAZARDS

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

1.32. POSTED DOCUMENTS

1.32.1. Post legible versions of the following documents on site:

.1 Site Specific Health and Safety Plan
.2 Sequence of work
.3 Emergency procedures
.4 BC One call approval.
.5 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
.6 Notice of Project
.7 Floor plans or site plans
.8 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.

.9 Workplace Hazardous Materials Information System (WHMIS) documents.
.10 Material Safety Data Sheets (MSDS)
.11 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.

1.32.2. Post all Material Safety Data Sheets (MSDS) on site, 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.

1.32.3. 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 approved by the Departmental Representative.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. Non-Contaminated Quality Off-site Material Removal, Transport and Disposal will be paid in accordance with unit rate price established for weight of material disposed. Measurement as recorded on weigh scale certified by Measurement Canada and results provided to Departmental Representative on Certificates of Disposal. Includes Treatment or any other processing of material required by Disposal Facility but not required by the Contract. Includes surface and buried debris (wood, concrete, rebar, metal, brick), including cleaning to meet disposal/recycling facility requirements.

1.2. Definitions

1.2.1. See 01 11 55.

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, including incorporation of Environmental Effects Determination and Biolinx report findings (included in Annex 4). 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. Communications 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 directed by the Departmental Representative; and federal, provincial, and municipal emergency contacts. Note, there is limited cell phone reception on the Site potentially limiting external communication.

1.3.1.4. Work Area 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.

1.3.1.5. Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, on-site soil treatment facility, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

1.3.1.6. Historical, Archaeological, Cultural Resources, Biological Resources and Valued Habitat Protection identifying methods, means, and sequences for preventing, monitoring, and controlling protection of historical, archaeological, cultural resources, biological resources and valued habitat. Include procedures if previously unknown historical, archaeological, cultural, and biological resources are discovered during Work. Includes Species At Risk.

1.3.1.7. Non-Contaminated Quality Soil and Water Management including on-site handling to manage Solid Waste, Sewage, and Wastewater.

1.3.1.8. Non-Contaminated Quality Soil Transport and Disposal including transportation frequency and identifying off-site disposal facilities to manage Solid Waste. Copy of permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the disposal of relevant Non-Contaminated Material.

1.3.1.9. Traffic Management Plan including signage and traffic control personnel for Site ingress and egress. Traffic Management Plan, vehicles and vehicle traffic must comply with all federal, provincial, and municipal laws and regulations.

1.3.1.10. Noise Control identifying methods, means, and sequences 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.

1.3.1.11. Vibration Control identifying methods, means, and sequences 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; in accordance with the Contract; in accordance with recommendations from the Contractor's Qualified Professional. Include thresholds and procedures if: vibration does not comply with appropriate levels, there are public complaints, or if on-site or off-site damage occurs.

1.3.1.12. Vapours, Dust, and Particulate Control identifying methods, means, and sequences for preventing, monitoring, and controlling vapours, dust and other airborne particulates 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: vapours, dust, and particulates do not comply with appropriate levels, there are public complaints, or if on-site or off-site damage occurs.

1.3.1.13. Spill Control identifying methods, means, and sequences for preventing, monitoring, and controlling spills 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. Identify reporting requirements for spills. Identify locations and contents of spill kits.

1.3.1.14. Erosion and Sediment Control identifying methods, means, and sequences for preventing, monitoring, and controlling on-site surface water, erosion and sedimentation 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.

1.3.1.15. Work in or Adjacent to Waterways Control, as required, identifying methods, means, and sequences for preventing, monitoring, and controlling work in or adjacent to waterways 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 measures for protection of fish and wildlife during Work in or Adjacent to Waterways including isolation and dewatering of work zones and monitoring. Include coordination with owner's Environmental Consultant for fish and wildlife salvage prior to Work in or Adjacent to Waterways.

1.3.1.16. Monitoring requirements for general compliance with Environmental Protection Plan.

1.3.1.17. Environmental Protection Plan must be signed and sealed by Contractor's Qualified Professional, as required by potential impact to environment by Contractor's methods, means and sequences.

1.3.2. Submit amended Environmental Protection Plan if there are changes to the assumed site conditions, changes to the Work procedures, or in the event that any methods and procedures are inadequate as directed by the Departmental Representative.

1.3.3. Submit Spill and Response Report for all Spills. Include: description of spill (location, time, quantity and quality), notifications (including copies of any reports forwarded to regulatory agencies), and describe any remediation activities (time, quantity, quality, and fate of spill impacted material). Include environmental analytical results for spill or other environmental testing.

1.3.4. 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, if request can be reasonably accommodated by other contractors and Site users, and third parties are not adversely affected, in the sole opinion of the Departmental Representative. Hours of work are noted in Section 01 11 00 -1.11.12.

1.4. Contractor's Qualified Professional

1.4.1. Perform design, construction, monitoring, reporting, and other required tasks under the supervision of the Contractor's Qualified Professional applicable to the performance of the Work.

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. Use existing trails, roads or cut lines wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction.

1.6.2. Restrict tree and plant removal to areas in accordance with the Contract or as directed by the Departmental Representative. To greatest extent practicable, prune or top the vegetation instead of grubbing/uprooting. Protect all other trees and plants on site and off site.

1.6.3. Salvage all trees and plants to be removed in accordance with the Contract or as directed by the Departmental Representative.

1.6.4. Wrap salvaged trees in burlap, trees and shrubs adjacent to construction Work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.

1.6.5. Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

1.7. Archaeological

1.7.1. All site workers will be required to attend a one (1)-hour orientation meeting coordinated by the Departmental Representative on Archaeological Chance Find Management Procedures (that may also include environmental and Suspected UXO topics), be able to identify pre-contact and historical artifacts, and be familiar with basic preservation techniques for fragile archaeological materials prior to commencement of work activities.

1.7.2. Abide by Chance Find Procedures developed by Departmental Representative, as appropriate (Annex H).

1.8. Species At Risk

1.8.1. Protect all Species At Risk, including meeting all federal, provincial, and municipal laws and regulations.

1.8.2. Modify Work procedures, including stopping Work, as instructed by Contractor's Qualified Professional or Departmental Representative to protect Species At Risk.

1.9. Non-Contaminated Quality Soil and Water Management

1.9.1. Solid waste

1.9.1.1. Remove all Non-Contaminated Quality Soil within Work areas in accordance with the Contract and as directed by the Departmental Representative.

1.9.1.2. Remove surplus materials and temporary facilities from Site.

1.9.1.3. Do not burn or bury any waste on site.

1.9.1.4. Do not discharge wastes into streams or waterways.

1.9.1.5. Do not dispose of volatile or hazardous materials such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

1.9.1.6. Dispose of all Non-Contaminated Quality Soil at a Landfill Facility.

1.9.2. Sewage

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

1.9.2.2. Provide, operate, and maintain Sewage storage tanks to store Sewage.

1.9.2.3. Transport and dispose of Sewage at a Disposal Facility, or discharge to municipal sanitary sewer system in compliance with Municipal requirements, as accepted by Departmental Representative.

1.9.2.4. Discharges: comply with applicable discharge limitations and requirements; do not discharge Sewage 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.

1.9.3. Wastewater

1.9.3.1. Dewater various parts of Work including, excavations, structures, foundations, and Work areas, unless otherwise specified or directed by Departmental Representative.

1.9.3.2. Employ construction methods, plant procedures, and precautions that ensure Work, including excavations, are stable, free from disturbance, and dry.

1.9.3.3. Direct surface waters that have not contacted potentially Contaminated Material to surface drainage systems.

1.9.3.4. 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.

1.9.3.5. Dispose of Wastewater in manner not injurious to public health or safety, to the environment, to on-site or off-site property, or to any part of Work completed or under construction.

1.9.3.6. Control disposal or runoff of Wastewater containing suspended materials or other harmful substances in accordance with local authority requirements.

1.9.3.7. Ensure pumped Wastewater 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.

1.9.3.8. Obtain permits to discharge Wastewater to environment or municipal system (sewer, ditches).

1.9.3.9. Do not discharge water which may have come in contact with potentially Contaminated Soil or otherwise be Contaminated directly off site to the environment or to municipal system.

1.10. Non-Contaminated Quality Soil Transport and Disposal

1.10.1. Assume ownership of, and be responsible for, Non-Contaminated Quality Soil once it is loaded on a vehicle, barge, or other vessel for Transport. Assume ownership of, and be responsible for, Non-Contaminated Quality Soil Disposed.

1.10.2. Transport material as soon as practical; do not unreasonably stockpile on site.

1.10.3. Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.

1.10.4. Excess water in material must not be allowed to flow out of vehicle or vessel during transport.

1.10.5. Stabilize material as necessary.

1.10.6. All vehicles, vessels and operators must be appropriately licensed and equipped to transport Non-Contaminated Quality Soil.

1.10.7. Barges must be inspected by an independent Marine Surveyor for stability and safety.

1.10.8. Non-Contaminated Quality Soil Disposal: dispose all Non-Contaminated Quality Soil, at Landfill Facility provided by Contractor and accepted by the Departmental Representative.

1.10.9. Landfill Facility must:

1.10.9.1. Be an existing off-site facility located in Canada or the United States.

1.10.9.2. 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.

1.10.9.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by the BC government for the Disposal of relevant Non-Contaminated Quality Soil.

1.10.9.4. Comply with requirements of acts, regulations, bylaws, and other requirements, in force or appropriately adopted as guidelines, including the BC Environmental Management Act and BC Landfill Criteria for Municipal Solid Waste, municipal zoning bylaws, or equivalent.

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

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

1.10.12. If proposed Landfill Facility is not acceptable to Departmental Representative, provide an alternate Landfill Facility that is acceptable.

1.11. Public Traffic Management

1.11.1. Where applicable, traffic to include pedestrian traffic.

1.11.2. Ensure pedestrians have safe and unencumbered access in public areas. Provide traffic control personnel wherever Contractor's activities (including vehicle crossings) impedes sidewalks, pathways, bike paths, roadways, or other public routes, or elsewhere as required or as directed by Departmental Representative.

1.11.3. 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.

1.11.4. 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.

1.11.5. Comply with current version of WorkSafeBC Occupational Health and Safety Regulation *Part 18 Traffic Control*, as appropriate.

1.11.6. Comply with current version of BC Ministry of Transportation and Infrastructure *2015 Interim Traffic Management Manual for Work on Roadways*.

1.11.7. Obtain all necessary permits or other authorizations regarding traffic control, including access and road usage.

1.11.8. 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.

1.11.9. Prevent tracking or spilling of debris or material onto private and public roads.

1.11.10. Immediately sweep or scrape up debris or material on private and public roads.

1.11.11. Clean public roads within a minimum 200 m radius of the Site entrance or as required at least once per shift, or as directed by Departmental Representative.

1.11.12. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate, when reasonable use of neighbouring properties are impacted, or when monitoring indicates that levels equal or exceed regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.

1.12. Noise, Vibration, Vapours, and Dust Control

1.12.1. Maintain acceptable levels not injurious or objectionable to worker safety, public health, the environment, and equipment and infrastructure.

1.12.2. Comply with applicable municipal bylaws and other applicable requirements unless otherwise specified or directed by Departmental Representative; Contractor's Qualified Professional to may determine lower acceptable levels.

1.12.3. Maximum levels allowed at site boundaries to prevent nuisance, unless otherwise accepted by Departmental Representative:

1.12.3.1. Noise: 65 dBa.

1.12.3.2. Vibration: 0.315 m/s^2 (based on ISO 2631-1).

1.12.3.3. Dust PM_{10}: 50 $\mu g/m^3$.

1.12.4. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate, when reasonable use of neighbouring properties are impacted, or when monitoring indicates that levels equal or exceed regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.

1.12.5. Specific procedures to prevent dust:

1.12.5.1. Cover or wet down relevant Work to prevent vapours and blowing dust and debris, including temporary roads, excavations, and stockpiles. In urban environments or if sensitive neighbouring properties (eg residences) provide full time coverage or wetting down.

1.12.5.2. Covers to be impermeable (eg minimum 5 mil polyethylene) and securely fashioned to prevent blowing off. Use fresh (non-saline) water for dust and particulate control.

1.12.5.3. Use appropriate covers on vehicles, including trucks, barges, and trains, hauling vapour-generating or fine or dusty material. Use watertight vehicles to haul wet materials.

1.13. Spill Control

1.13.1. 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.

1.13.2. Prevent spills or releases.

1.13.2.1. Maintain temporary erosion and pollution control features.

1.13.2.2. Do not store fuel on site other than tanks forming part of the equipment.

1.13.2.3. Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals do not enter the watercourse.

1.13.2.4. Control emissions from equipment and plant to meet applicable authorities' emission requirements.

1.13.2.5. Contractor to regularly inspect all machinery on the Site to ensure it is in good repair and free of leaks.

1.13.3. Be prepared to intercept, cleanup, and dispose of spills or other releases that can occur whether on land or water.

1.13.4. Spill kits and containment are to be maintained on site and ready for deployment in the event of spills or other releases.

1.13.4.1. Spill kits are to include sufficient quantities of absorbent material, containers, booms, shovels and other tools, and personal protective equipment.

1.13.4.2. Spill response materials must be compatible with type of equipment being used or type of material being handled.

1.13.4.3. Spill kits are to be in close proximity to machinery.

1.13.4.4. During the Work there are to be trained and qualified personnel available that are ready to deploy spill kits when necessary.

1.13.5. Take immediate action using available resources to contain and mitigate effects on environment and persons from spill or release.

1.13.6. Promptly report spills and releases potentially causing damage to environment to:

1.13.6.1. Authority having jurisdiction or interest in spill or other release including conservation authority, water supply authorities, drainage authority, road authority, and fire department.

1.13.6.2. Contractor emergency response team including Superintendent.

1.13.6.3. Departmental Representative and other contractor(s) and individuals as directed by the Departmental Representative.

1.13.7. 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.

1.13.8. Remediation of soil, sediment or water contaminated by Contractor's activities.

1.13.8.1. Remediate all soil, sediment or water contaminated by Contractor's activities associated with the Work on site and off site.

1.13.8.2. 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.

1.13.8.3. Submit procedures for remediating soil, sediment or water contaminated by Contractor's activities.

1.13.8.4. Remediate as directed by the Departmental Representative.

1.13.8.5. Contractor is responsible for any additional investigation, testing, and assessments required as acceptable to the Departmental Representative.

1.13.9. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate, when reasonable use of neighbouring properties are impacted, or when monitoring indicates that levels equal or exceed regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.

1.14. Erosion and Sediment Control

1.14.1. Implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear.

1.14.2. Install effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.

1.14.3. Manage water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody.

For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.

1.14.4. Implement site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, underwater cable installation).

1.14.5. Contain and stabilize waste material (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.

1.14.6. Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction.

1.14.7. Repair erosion and sediment control measures and structures if damage occurs.

1.14.8. Remove non-biodegradable erosion and sediment control materials once site is stabilized.

1.14.9. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate, when reasonable use of neighbouring properties are impacted, or when monitoring indicates that levels equal or exceed regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.

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. 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 site preparation, temporary structures and facilities, environmental protection, stockpile areas, access, on-site roadways, temporary hoarding, security fencing, federal signage, office facilities, sanitary facilities, stormwater management infrastructure, lighting, and utility services.

1.1.2. Site Facilities - Operation will be paid in accordance with lump sum price established to operate and maintain all infrastructure between mobilization and demobilization. Includes site preparation, temporary structures and facilities, environmental protection, stockpile areas, access, on-site roadways, temporary hoarding, security fencing, federal signage, office facilities, sanitary facilities, stormwater management infrastructure, lighting, and utilities. Also includes ongoing services including administration, overhead, project management, security, surveying, noise monitoring, vibration monitoring, utility services, project meetings, inspections, progress Submittals, traffic control, health and safety, Environmental Protection, cleaning, and operation during inclement weather. Also includes living out allowances, travel and room and board. Lump sum may be pro-rated based on duration in Master Plan for Extension of Time.

1.2. Definitions

1.2.1. See 01 11 55.

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. Grading, including contours, required to construct temporary facilities.

1.3.1.7. Location of all temporary facilities including: On-site Contaminated Water Treatment Plant, truck wash and decontamination units, office trailers, modular camp structures, parking, storage, environmental monitoring stations, above ground and underground utilities, roads, and other temporary facilities.

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

1.4. Examination

1.4.1. Site Verification of Conditions:

1.4.1.1. Contractor to determine condition of existing Site and requirements to make the Site suitable for Work.

1.5. Site Preparation

1.5.1. Site Preparation and operation includes construction, operation and maintenance for the duration of the Work,

1.5.2. Remove and dispose all surficial Non-Contaminated Quality Soil at a Landfill to allow access for Work.

1.5.3. Clearing and grubbing of the Site to allow access for Work.

1.5.3.1. Clearing consists of removing Non-Contaminated Quality Soil vegetation above existing ground surface to facilitate Work. Includes: cutting off trees and brush vegetative growth, felled trees, previously uprooted trees and stumps. Dispose of Non-Contaminated Quality Soil at a Landfill.

1.5.3.2. Grubbing consists of excavation of Non-Contaminated Quality Soil below existing ground surface to facilitate Work. Includes: stumps, roots, boulders and rock fragments. Dispose of Non-Contaminated Quality Soil at a Landfill.

1.5.4. Remove obstructions, ice and snow, from surfaces to be worked.

1.6. Utility Services

1.6.1. Utility Services (including electrical power, potable water, sewers, and telecommunications) not identified as being available on Site must be supplied at the Contractor's expense. Provide supplied utilities for entire work force, including Subcontractors and Departmental Representative and their consultants.

1.7. Sanitary Facilities

1.7.1. Provide sanitary facilities for work force (including Contractor, Subcontractors, Departmental Representative, and Consultants) in accordance with governing regulations and ordinances.

1.7.2. Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.8. Fire Protection

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

1.9. Access and Delivery

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

1.9.1.1. Maintain for duration of Contract.

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

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

1.10. Installation and Removal

1.10.1. 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.

1.10.2. Identify areas which have to be graveled or otherwise treated to prevent tracking of mud.

1.10.3. Indicate use of supplemental or other staging area.

1.10.4. Provide construction facilities in order to execute work expeditiously.

1.10.5. Provide temporary utilities in order to execute Work expeditiously.

1.10.6. Remove from Site all such Work after use.

1.11. Site Storage/Loading

1.11.1. Confine work and operations of employees in accordance with the Contract. Do not unreasonably encumber premises with products.

1.11.2. Storage space must be limited to the Site.

1.11.3. Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.12. Construction Parking

1.12.1. Parking of private vehicles will not be permitted on Site, unless otherwise agreed to by Departmental Representative.

1.12.2. Provide and maintain adequate access to project site.

1.13. Security

1.13.1. Be responsible security of site and contents of site after working hours and during holidays. Provide on-site security personnel as appropriate and in accordance with the Contract.

1.13.2. Control access to Site and maintain a log of all personnel on site. No non-Work visitors allowed without prior written consent of Departmental Representative.

1.14. Equipment, Tools and Materials Storage

1.14.1. Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

1.14.2. Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.15. Construction Signage

1.15.1. Provide and erect 2 project signs within 10 Working Days of mobilization in a location designated by Departmental Representative. Project signs must, unless otherwise directed by Departmental Representative, include: name of Client, name of Project, and information contact number in both official languages using graphic symbols to CAN/CSA-Z321. Project signs to be a minimum of 1,200 x 2,400mm.

1.15.2. Contractor signage must be accepted by Departmental Representative.

1.15.3. Contractor signage must include at a minimum:

1.15.3.1. Name of Contractor.

1.15.3.2. Emergency contact number.

1.15.3.3. Personal Protective Equipment requirements.

1.15.3.4. Other pertinent safety warnings (e.g., “open excavation”).

1.15.4. Maintain accepted 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.

1.16. On-site Traffic Management

1.16.1. Where applicable, traffic to include pedestrian traffic.

1.16.2. Provide access and temporary relocated roads as necessary to maintain traffic.

1.16.3. Maintain and protect traffic on affected roads during construction period.

1.16.4. 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.

1.16.5. Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

1.16.6. Verify adequacy of existing roads and allowable load limit on these roads. Contractor responsible for repair of damage to roads caused by construction operations.

1.17. On-site Roads

1.17.1. Where applicable, traffic to include pedestrian traffic.

1.17.2. Construct, operate and maintain the on-site access roads as required.

1.17.3. Design of temporary on-site access roads to be signed and sealed by Contractor's Qualified Professional.

1.17.4. Contractor's Qualified Professional to confirm that the temporary on-site access roads allow for the safe transport of materials and equipment.

1.17.5. Any temporary access, detour and haul roads associated with the project must be constructed to accommodate all required uses and be maintained throughout the course of construction operations in a safe, environmentally sound manner.

1.17.6. Location, alignment, design and construction of all detour, access and haul roads subject to the acceptance of the Departmental Representative.
1.17.7. Employ suitable measures to maintain quality, visibility, and safe conditions in the use of access, detour and haul roads associated with the Work.
1.17.8. Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
1.17.9. Dust control: adequate to ensure safe operation at all times.
1.17.10. Provide snow removal during period of Work.
1.17.11. Remove, upon completion of work, haul roads designated by Departmental Representative.

1.18. Clean-Up

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

1.19. Storage Tanks

1.19.1. Abide by the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations for stored petroleum products and allied petroleum products tank system located on federal or Aboriginal land, or within federal jurisdiction as described in the regulations.
1.19.2. Temporary storage tanks subject to the regulations must be registered with Environment Canada.
1.19.3. Mobile tanks subject to the regulations must be certified to be mobile.
1.19.4. Storage tanks to meet the following minimum requirements:
1.19.4.1. Corrosion protection.
1.19.4.2. Secondary containment.
1.19.4.3. Containment sumps, if applicable.
1.19.4.4. Overfill protection.
1.19.5. All components of tank system must bear certification marks indicating that they conform to the standards set out in the regulations.
1.19.6. Product transfer area must be designed to contain spills.
1.19.7. Prepare an emergency plan.
1.19.8. Prior to first filling, storage tanks must:
1.19.8.1. Be registered.
1.19.8.2. Be certified and marked.
1.19.8.3. Transfer area be constructed.
1.19.8.4. Emergency plan in place.

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. Contaminated Water Treatment Off-site-Provision will be paid in accordance with lump sum price established to collect, store, and sample if required contaminated or potentially Contaminated Water. Includes dewatering of Contaminated Water from excavation. Includes provision of bulk liquid removal and storage equipment (hydrovac) for Off-site Water Treatment Facility.

1.1.2. Contaminated Water Treatment Off-site-Operation will be paid in accordance with the lump sum price established to process Contaminated Water off site. Includes Transport and Treatment at Off-site Contaminated Water Treatment Facility. Includes analytical testing to demonstrate compliance as requested by the Departmental Representative. Lump sum may be pro-rated based on duration in Master Plan for Extension of Time.

1.2. Definitions

1.2.1. See 01 11 55.

1.3. Action and Informational Submittals

1.3.1. Contaminated Water Treatment Provision Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit methods, means, and sequences for Contaminated Water Treatment Off-Site Provision 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. Includes on-site infrastructure.

1.3.2. Off-site Contaminated Water Treatment Facility Plan: at least 10 days prior to transporting material to a Treatment Facility, Submit documentation describing Treatment Facility. Include for each Treatment Facility:

1.3.2.1. Copy of permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the Treatment of relevant Contaminated Material.

1.3.2.2. Letter from Contractor's Qualified Professional that the Treatment Facility is appropriate for the nature, type, concentration, and quantity of Contaminated Material to be Treated in accordance with any authorization and complies with appropriate government requirements of a general nature (e.g., BC Landfill Criteria).

1.3.2.3. Letter from Treatment Facility that they can accept within the schedule in Contract Documents the nature, type, concentration, and quantity of Contaminated Material to be Treated at the Facility, signed by an authorized representative of the Facility.

1.3.3. Certificate of Treatment: within 30 Working Days of treatment at Off-site Contaminated Water Treatment Facility Facility, Submit documentation verifying that materials have been treated by Contractor. Include:

1.3.3.1. Issued by the Treatment Facility.

1.3.3.2. On company letterhead.
1.3.3.3. Name and location of facility where the material is being treated.
1.3.3.4. Date and weight for each shipment received and total weight received at the off-site facility.
1.3.3.5. Date and weight for each treatment event and total weight treated at the off-site facility.
1.3.3.6. Treatment methodology.
1.3.3.7. Laboratory certificates demonstrating Treatment objectives were met.
1.3.3.8. Disposition of treated material.
1.3.3.9. Signed by identified authorized treatment company representative.

2. PART 2 - PRODUCTS

2.1. Not Used
2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Contaminated Water Transport
3.1.1. Assume ownership of, and be responsible for Contaminated Water once it is loaded on a vehicle, barge, or other vessel for tr or once it enters the On-site Contaminated Water Treatment Plant.

3.2. Contaminated Water Treatment Off Site
3.2.1. Assume ownership of, and be responsible for, Contaminated Material treated off site.
3.2.2. Contaminated Material Treatment – Off site: treat at Treatment Facility provided by Contractor and accepted by the Departmental Representative.
3.2.3. Off-site Treatment Facility must:
3.2.3.1. Be an existing off-site facility located in Canada or the United States.
3.2.3.2. Be designed, constructed and operated for the handling or processing of Contaminated Material for the purposes of Treatment.
3.2.3.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the treatment of relevant Contaminated Material.
3.2.3.4. Comply with requirements of acts, regulations, bylaws, and other requirements, in force or appropriately adopted as guidelines, including the BC Environmental Management Act and BC Landfill Criteria for Municipal Solid Waste, municipal zoning bylaws, or equivalent.
3.2.4. Treat material as soon as practical and within 100 Working Days of leaving Site or as required by Contract unless otherwise accepted by Departmental Representative.
3.2.5. Water sent to an off-site Treatment Facility must subsequently be discharged in compliance with a Discharge Approval.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. Not Used.

1.1.2. Oversize Debris Removal will be paid in accordance with unit rate price established for the removal, transport and disposal of the debris in accordance with Section 01 35 43 1.1.1.

1.1.3. Excavation will be paid in accordance with unit rate price established for volume of material removed to excavate to Contaminated Soil extents as shown in Drawings. Includes temporary sloping and shoring design, provision, installation, removal, supervision, and inspection. Includes all on-site handling, loading, hauling, unloading and stockpiling. Interim Excavation volume as recorded in-situ Excavation volume using Progress Survey. Final Excavation volume as recorded in-situ Excavation volume using Contractor's Qualified Professional Surveyor, based on difference between Preconstruction Condition Survey and Final Excavation Limits.

1.1.4. Measurement as recorded in-situ Excavation volume using Progress Survey for interim measurement and Contractor's Qualified Professional Surveyor for final excavation volume extents (As-Built). In-situ volume is simple dimensions of excavation and does not consider ex-situ bulking (expansion or swell) and in-situ compaction (densifying) factors.

1.1.5. Backfill–Imported will be paid in accordance with unit rate price established per weight for material imported for Backfill for Excavation. Includes Contractor's analytical testing and inspections to demonstrate compliance with Contract and Environmental Effects Determination, provision, all on-site and off-site handling, loading, hauling, unloading, placing, grading and compacting. Measurement as recorded on weigh scale certified by Measurement Canada and results provided to Departmental Representative.

1.1.6. Backfill–Overburden will be paid in accordance with unit rate price established for volume of Overburden material suitable for reuse as Backfill for Excavation. Includes all on-site handling, loading, hauling, unloading and stockpiling. Measurement as recorded in-situ Excavation volume using Progress Survey for interim measurement and Contractor's Qualified Professional Surveyor for final excavation extents (As-Built). In-situ volume is simple dimensions of excavation and does not consider ex-situ bulking (expansion or swell) and in-situ compaction (densifying) factors.

1.1.7. Backfill–Topsoil will be paid in accordance with unit rate price established for volume of Topsoil material suitable for reuse as Backfill for Excavation. Includes all on-site handling, loading, hauling, unloading and stockpiling. Also includes seeding with native seed mix and tree planting as specified in the Environmental Effects Determination. Measurement as recorded in-situ Excavation volume using Progress Survey for interim measurement and Contractor's Qualified Professional Surveyor for final excavation extents (As-Built). In-situ volume is simple

dimensions of excavation and does not consider ex-situ bulking (expansion or swell) and in-situ compaction (densifying) factors.

1.2. Definitions

1.2.1. See 01 11 55.

1.3. Action and Informational Submittals

1.3.1. Excavation and Backfilling Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit methods, means, and sequences for Contaminated Sites Excavation 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:

1.3.1.1. Excavation Temporary Slope and Shoring Design must be signed and sealed by Contractor's Qualified Professional, as required by ground conditions, excavation depth, shoring type, or support type.

1.3.1.2. Methods, means, and sequences for excavation dewatering and heave protection.

1.3.1.3. Support of structures design.

1.3.1.4. Procedures for excavations adjacent to utilities or other structures if the excavation has the potential to impact utilities or other structures.

1.3.1.5. 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. Backfilling requirements includes Imported Backfill, Overburden, and Topsoil.

1.3.1.6. Backfilling design for utilities or other infrastructure to be reinstated or new.

1.3.1.7. Monitoring and inspection requirements, including frequency or milestones when Contractor's Qualified Professional must inspect Works.

1.3.1.8. Excavation and Backfilling Plan must be signed and sealed by Contractor's Qualified Professional, as required by ground conditions, excavation depth, shoring type, or support type.

1.3.2. Import Backfill Material Quality: at least 5 Working Days prior to bringing material on site, Submit documentation signed and sealed by Contractor's Qualified Professional verifying that material is acceptable for import and intended use. Include:

1.3.2.1. Grain-size distribution information.

1.3.2.2. All imported materials must meet applicable environmental standards and guidelines and shall adhere with the Directorate of Contaminated Sites (DCS) Contaminated Sites Instruction (CSI.004.001).

1.3.2.3. Chemical analyses for Potential Contaminants of Concern, including at a minimum: metals, volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH), hydrocarbons including benzene, ethylbenzene, toluene, xylenes and F1 to F4, and per- and polyfluorinated alkyl substances (PFAS).

1.3.2.4. Testing to be performed by Contractor's Qualified Professional at sufficient frequency to characterize all Imported Backfilled. Test using appropriate guidelines and practices.

1.3.3. Import Backfill Samples: at least 10 Working Days prior to bringing material to Site, Submit samples of Imported Backfilled.

1.3.3.1. Samples to be representative of all Imported Backfilled. Sample frequency subject to acceptance by Departmental Representative.

1.3.3.2. Submit sufficient sample size to allow geotechnical and environmental quality testing as directed by Departmental Representative.

1.3.4. Temporary Hoarding and Fencing: at least 5 Working Days prior to installation, Submit a description of temporary hoarding and fencing.

1.3.5. 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 Contractor's Qualified Professional. Include:

1.3.5.1. Backfill testing results, including geotechnical and environmental quality, confirming results meet requirements in Contract, Environmental Effects Determination, and Excavation Plan.

1.3.5.2. Compaction testing results, confirming results meet requirements in Contract and Excavation Plan.

1.4. Sequencing for Free Phase Products

1.4.1. When floating free phase substance (Non-Aqueous Phase Liquids) is present, remove free phase from saturated soil or sediment without further contaminating soil, sediment or groundwater prior to commencing other construction Work.

1.4.2. Collect free phase product (NAPL), load, and transport to a Treatment Facility.

2. PART 2 - PRODUCTS

2.1. Materials

2.1.1. Short term temporary liners and covers to be a minimum of 4 mil plastic.

2.1.2. Erosion and sediment control materials to meet the following minimum requirements:

2.1.2.1. 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.

2.1.2.2. Silt Fence: assembled, ready to install unit consisting of geotextile attached to driveable posts. Geotextile: uniform in texture and appearance, having no defects, flaws, or tears that would affect its physical properties; and contain sufficient ultraviolet ray inhibitor and stabilizers to provide minimum 2-year service life from outdoor exposure.

2.1.2.3. Net Backing: industrial polypropylene mesh joined to geotextile at both top and bottom with double stitching of heavy-duty cord, with minimum width of 750 mm.

2.1.2.4. Posts: sharpened wood, approximately 50 mm square, protruding below bottom of geotextile to allow minimum 450 mm embedment; post spacing 2.4 m maximum. Securely fasten each post to geotextile and net backing using suitable staples.

2.1.3. 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).

2.1.4. Import fill materials to meet the following minimum geotechnical requirements:

2.1.4.1. For uplands material: 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. Imported backfill total silt and clay content not to exceed 15% by mass or as required by Contract unless otherwise accepted by Departmental Representative.

2.1.5. Import fill materials to meet the following minimum environmental quality requirements for the site:

2.1.5.1. Import fill materials must originate from a clean source, and shall adhere with the Directorate of Contaminated Sites (DCS) Contaminated Sites Instruction (CSI.004.001).

2.1.5.2. Import fill material that is cobble sized or larger (> 64mm) brought on site 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. The potential for metals leaching must use Shake Flask Extraction (SFE) Method for analysis of metals leaching. See guidance document *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials* MEND Report 1.20.1, Natural Resources Canada, Price 2009.

2.1.5.3. Any import fill material which has a discrete sample exceeding the environmental quality requirements specified must be removed from the Site and replaced, including relevant placed material, as directed by the Departmental Representative. An alternate source of backfill must be provided, with no increases to Contract Amount or Extension of Time for completion of the Work.

2.1.5.4. Environmental quality requirements may be modified by the Departmental Representative taking into consideration background concentrations, commercially available material, and site-specific factors and/or land use.

2.1.6. Import fill material additional testing:

2.1.6.1. Perform additional testing as directed by the Departmental Representative to confirm suitability.

2.1.6.2. Facilitate testing by the Departmental Representative to confirm suitability.

2.1.7. Asphalt, as required, must, at minimum, meet the specifications for: Upper Course #1 mix-type as specified in Section 32 12 16, Hot Mix Asphalt Concrete Paving; of the current version of the *BC Master Municipal Construction Document (2009) Platinum Edition*.

3. PART 3 - EXECUTION

3.1. Surface Preparation and Operation

3.1.1. Not Used

3.2. Import Fill Material Characterization

3.2.1. Sample, analyse, and compare to Contract requirements all import fill material for each backfill material type and for each import source for grain-size distribution and chemical analyses for Potential Contaminants of Concern at the following frequency:

3.2.1.1. Two random samples for the first 1,000 m^3.

3.2.1.2. One random samples for every subsequent (or portion thereof) 1,000 m^3 up to 10,000 m^3.

3.2.1.3. One random samples for every subsequent (or portion thereof) 10,000 m^3.

3.2.2. Sampling frequency must be increased as directed by the Departmental Representative for each of the following:

3.2.2.1. If the import source does not have a Preliminary Site Investigation-Stage 1 performed by the Contractor's Qualified Professional with no Areas of Potential Environmental Concern. Sample frequency increases to at least 1 random sample for every 500 m^3.

3.2.2.2. If any sample collected does not meet requirements according to Contract.

3.2.3. Provide two random samples representative of each class and source of imported fill material samples to the Departmental Representative. Samples may be tested for geotechnical and environmental quality by Departmental Representative. Import fill material testing may take up to 5 Working Days not including day of sample provision.

3.2.4. 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).

3.2.5. Departmental Representative will inspect import fill material brought on site, and will not allow import of fill material that varies from Submittal samples.

3.3. Excavation Temporary Sloping and Shoring

3.3.1. Design, provide, install, remove, supervise, and inspect appropriate sloping or shoring to allow excavation of Contaminated Soil Extents according to Drawings or as directed by Departmental Representative.

3.3.2. Departmental Representative responsible for determining Contaminated Soil Extents.

3.3.3. Contractor's Qualified Professional to determine Excavation Extents.

3.3.4. Drawings are for reference purposes only, and are Conceptual and not Issued For Construction.

3.3.5. Design Requirements:

3.3.5.1. Design must be completed by, and is the sole responsibility of, the Contractor's Qualified Professional. All Shop Drawings of sloping and shoring design to be signed and sealed by Contractor's Qualified Professional.

3.3.5.2. Act as sloping or shoring structures for excavations as well as for stability of foundations and infrastructure during remediation excavation.

3.3.5.3. Allow excavation of all Contaminated Soil laterally and vertically on the Site to Extents in accordance with the Contract. Allow excavation of additional Debris and/or Contaminated Soil beyond Contaminated Soil Extents in order to result in substantially reduced Debris volume at the Site based on field observations as directed by the Departmental Representative.

3.3.5.4. Provide a safe working environment for personnel and equipment within the excavation area, including collection of confirmatory samples or other work that may be required at the base of the excavation.

3.3.5.5. Additional design requirements as determined by the Contractor's Qualified Professional.

3.3.5.6. Additional sloping or shoring may be required to extend excavation beyond Contaminated Soil Extents according to Drawings. Revise Temporary Sloping and Shoring design as required by Contractor's Qualified Professional.

3.3.5.7. Temporary shoring cannot have any tiebacks or supports which extend beyond the project Site boundary.

3.3.5.8. Temporary shoring must not flex or bend when exposed while excavations are occurring on the Site.

3.3.5.9. Sloping and shoring structures are temporary structures only. Resistance to seismic loads will be at the sole discretion of the Contractor's Qualified Professional. Be responsible for any failures and resultant costs should the temporary sloping or shoring fail due to a seismic event during the construction period.

3.3.5.10. Temporary sloping and shoring designs to be completed in accordance with methods in current version of Canadian Foundation Engineering Manual.

3.3.6. Installation:

3.3.6.1. Installation must be supervised by, and is the sole responsibility of, the Contractor's Qualified Professional. All inspection reports of sloping and shoring to be signed and sealed by Contractor's Qualified Professional.

3.3.6.2. All installation activities must take place on the Site. No staging or construction activities are to take place on adjacent properties.

3.3.7. Maintain side slopes of excavations in safe condition by appropriate methods and in accordance with relevant regulations.

3.3.8. During backfill operation:

3.3.8.1. Unless otherwise identified according to Drawings or as directed by the Departmental Representative, remove temporary shoring from excavations.

3.3.9. Temporary sloping and shoring excavated material:

3.3.9.1. Material excavated for sloping or shoring may be re-used as backfill to replace material removed as accepted by Contractor's Qualified Professional and Departmental Representative.

3.3.9.2. Material excavated for sloping or shoring that is accepted for backfilling must follow procedures in accordance with requirements of Contractor's Qualified Professional and meet Contract Documents.

3.3.9.3. Material excavated for sloping or shoring not accepted must be removed from Site.

3.4. Dewatering and Heave Protection

3.4.1. Keep excavations free of water while Work is in progress unless otherwise identified according to Drawings or as directed by the Departmental Representative.

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. Provide standby equipment 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, 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 Quality Water and collect and divert to Contaminated Water Treatment Plant as required.

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 according to Drawings or as directed by Departmental Representative using methods, means, and sequences as determined by Contractor’s Qualified Professional.

3.5.3. Excavate all Contaminated Soil laterally and vertically on the Site to Extents in accordance with the Contract and as directed by PSPC.

3.5.4. Drawings show nominal Contaminated Soil Extents and quality of overlying soil for volume estimating purposes only. Contractor's methods, means, and sequences should allow for variations in actual extents, contaminants, and concentrations.

3.5.5. Excavation must not interfere with bearing capacity of adjacent foundations and infrastructure.

3.5.6. Machine cut banks and slopes.

3.5.7. Protect bottom of excavations from excessive traffic.

3.5.8. Grade excavation top perimeter to prevent surface water run-off into excavation.

3.5.9. Keep excavated and stockpiled materials safe distance away from edge of excavation.

3.5.10. Restrict vehicle operations directly adjacent to open excavations.

3.5.11. Suspected UXO (During Remedial Excavation Operations)

3.5.11.1. Although unlikely, suspected UXO of an unknown quantity may be encountered during remedial excavation operations. For the purposes of this Specification, Suspected UXO includes UXO, discarded military munitions, exploded ordnance, Munitions Scrap, small arms ammunition, and explosive residue. Others may refer to these items as duds, blinds, munitions, explosives of concern, or hazardous explosive ordnance.

3.5.11.2. The Contractor must provide a UXO Qualified Personnel on call for chance find call-outs in the event Suspected UXO are identified during remedial excavation activities at the Work Site and assess whether Suspected UXO is deemed safe or not safe to move in accordance with the Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011, provided in Appendix F. If the Contractor encounters Suspected UXO that are deemed unsafe to move by the Departmental Representative or the UXO Qualified Personnel during remedial excavation operations, the Contractor must immediately call RJOC at (250) 363-5848 and notify the operator where they are working at CFAD Rocky Point and then notify the Departmental Representative, and take safety precautions, to be described as part of the Contractor's Construction Work Plan and the Contractor's Health and Safety Plan.

3.5.11.3. No Suspected UXOs are permitted to be disposed of at a Disposal Facility. The Contractor must segregate all safe-to-move Suspected UXO from excavated soil, as directed by the Departmental Representative and in accordance with the site-specific means and methods presented in the Contractor's Construction Work Plan and the Contractor's Health and Safety Plan, as reviewed and accepted by the Departmental Representative.

3.5.12. Remove Oversize Debris.

3.5.12.1. Piles encountered during excavation must be cut off at base of excavation. Piles are not to be extracted beyond the base of the excavation.

3.5.12.2. Debris that impinges on infrastructure or neighbouring properties is not to be removed unless directed by Departmental Representative. Contractor's

Qualified Professional to confirm debris can be removed without impacting infrastructure or neighbouring properties.

3.5.12.3. Reduce size of Oversize Debris to allow to be Transported, Treated, and Disposed, as required, as Non-Contaminated Quality Soil or Contaminated Soil, as appropriate.

3.5.13. Remove Non-Contaminated Quality Soil to Landfill Facility or re-use as Backfill - Overburden according to Contract and as directed by Departmental Representative.

3.5.14. Earth bottoms of excavations to be undisturbed soil or sediment, level, free from loose, soft or organic material.

3.5.15. Notify Departmental Representative when bottom of excavation is reached based on Contaminated Soil Extents.

3.5.16. Provide assistance for collection of Confirmation Samples as directed to the Departmental Representative.

3.5.17. Obtain acceptance by Departmental Representative of completed excavation.

3.6. Soil Stockpiling

3.6.1. Stockpile material within work area in locations identified by Departmental Representative.

3.6.2. Provide, maintain, and operate temporary storage/stockpiling facilities as per Contractor's Site Layout.

3.6.3. Segregate Contaminated Soil from Non-Contaminated Quality Soil into separate stockpiles to prevent cross-contamination.

3.6.4. 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 directed by the Departmental Representative.

3.6.5. Securely fasten covers over stockpiled material until material is loaded for off-site transport.

3.6.6. Store excavated Non-Contaminated Quality Soil only on non-contaminated surface areas. Ensure no contact between excavated Non-Contaminated Quality Soil and drainage of Contaminated Water or Contaminated Soil.

3.6.7. Store excavated Contaminated Soil in temporary stockpiles.

3.6.7.1. Install impermeable liner (e.g., asphalt or minimum 20 mil (0.5 mm) polyethylene) below proposed stockpile locations to prevent contact between stockpile material and ground.

3.6.7.2. 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. Cover to be impermeable (e.g., minimum 5 mil polyethylene) and securely fashioned to prevent blowing off.

3.6.7.3. Prevent Non-Contaminated Quality Water, including surface runoff water, from coming into contact with Contaminated Soil stockpiles.

3.6.8. Segregate different suspect material in discrete stockpiles to facilitate ex-situ characterization for Classification as directed by the Departmental Representative.

3.6.9. Assist Departmental Representative in collection of stockpile samples for ex-situ characterization. Ex-situ characterization may take up to 5 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 Samples results provided within 5 Working Days, not counting the day the sample is collected.

3.6.10. Do not remove Contaminated Soil from stockpiles until ex-situ characterization completed and as directed by Departmental Representative.

3.7. Backfill Types and Compaction

3.7.1. Use only Imported Backfill or Overburden Backfill in accordance with the Contract and which has been recommended by Contractor's Qualified Professional, and previously accepted as a Submittal.

3.7.2. Compact material in accordance with the more stringent of Excavation Plan or Contract to ensure no long term settlement and is suitable for planned post-remediation use. Machine compact all fill materials unless otherwise according to Contract.

3.8. Backfilling

3.8.1. Backfill immediately only if required for stability purposes as determined by the Contractor's Qualified Professional.

3.8.2. Unless required to backfill immediately, do not proceed with backfilling operations until completion of following:

3.8.2.1. Confirmation Samples collection, analysis, and assessment has been completed by the Departmental Representative. Confirmation Samples analysis and assessment may take up to 5 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 Samples results provided within 5 Working Days, not including day of sample collection.

3.8.2.2. Surveying has been completed by the Contractor's Qualified Professional for Final Excavation Limits and As-Built documents, including utilities locations.

3.8.2.3. Departmental Representative has inspected and accepted Contaminated Material Extents by the Departmental Representative based on survey data and Confirmation Samples results.

3.8.2.4. Departmental Representative has inspected and accepted backfill material.

3.8.2.5. Imported fill material brought on site can be sampled and tested for geotechnical and environmental quality by Departmental Representative. Backfill material testing may take up to 5 Working Days not including day of sample collection.

3.8.2.6. Departmental Representative has inspected and accepted compaction results for previous lift.

3.8.2.7. Removal of shoring and bracing; backfilling of voids with satisfactory backfill material.

3.8.3. Areas to be backfilled to be free from debris, snow, ice, water and frozen ground to greatest extent practicable.

3.8.4. Do not use backfill material which is frozen or contains ice, snow or debris to greatest extent practicable.

3.8.5. 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 Contractor's Qualified Professional and in accordance with the Contract before placing succeeding layer. If backfilling is allowed to proceed in the wet (ie underwater), use self-compacting backfill as required by Contractor's Qualified Professional in accordance with Excavation Plan.

3.8.6. Backfill compaction to be tested by Contractor's Qualified Professional in accordance with Excavation Plan or as directed by Departmental Representative.

3.8.7. Notify Departmental Representative when final backfill grade is reached.

3.9. Overburden and Owner Supplied Material Backfilling

3.9.1. Place in locations in excavation as directed by Departmental Representative.

3.9.2. Be responsible for compacting to the satisfaction of Contractor's Qualified Professional and in accordance with the Contract.

3.9.2.1. Collect and test samples as required by Contractor's Qualified Professional prior to placement.

3.9.2.2. Identify any geotechnical concerns prior, and obtain Departmental Representative approval to proceed, prior to placement.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. Contaminated Material Transport: will be paid in accordance with unit rate price established for weight of material transported. Includes all handling, stabilization/amending, loading, hauling, unloading, transfer, interim storage, and transport to and from intermediate locations and final placement location. Stabilization/amending includes all measures required to prepare material for Transport, Treatment, and Disposal; includes provision and application of stabilizers or other amendments. Measurement as recorded on weigh scale certified by Measurement Canada and results provided to Departmental Representative. Certificates of disposal are to be provided.

1.1.2. Contaminated Material Stabilization: consideration will be given to the stabilization of the Hazardous Waste material to a degree where it can be shown to be considered Waste Quality for disposal prior to transport. Proposed stabilization methodology to be provided to the Department Representative for approval at least 10 working days in advance of the start of the excavation for approval.

1.2. Definitions

1.2.1. See 01 11 55.

1.3. Action and Informational Submittals

1.3.1. Contaminated Sites Transportation Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit methods, means, and sequences for Contaminated Sites Transportation 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 for each Transfer/Interim Storage Facility:

1.3.1.1. Copy of permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the Transfer/Interim Storage of relevant Contaminated Material.

1.3.1.2. Letter from Contractor's Qualified Professional that the Transfer/Interim Storage Facility is appropriate for the nature, type, concentration, and quantity of Contaminated Material to be Transferred/Interim Stored in accordance with any authorization and complies with appropriate government requirements of a general nature (eg BC Landfill Criteria).

1.3.1.3. Letter from Transfer/Interim Storage Facility that they can accept within the schedule in Contract Documents the nature, type, concentration, and quantity of Contaminated Material to be Transferred/Interim Stored at the Facility, signed by an authorized representative of the Facility.

1.3.2. Certificate of Seaworthiness: Prior to barge shipments, Submit a Certificate of Seaworthiness by an independent licensed Marine Surveyor for all marine vessels transporting Contaminated Soil.

1.3.3. Transport Manifests: within 5 Working Days of off-site transport, Submit documentation verifying that material has been transported appropriately. Include:
1.3.3.1. Method of transport.
1.3.3.2. Name of transport company.
1.3.3.3. Weigh scale receipt including location, date, and weight of loading, as appropriate.
1.3.3.4. Weigh scale receipt including location, date, and weight of unloading.

2. PART 2 - PRODUCTS

2.1. Not Used
2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Contaminated Soil Transport
3.1.1. Assume ownership of, and be responsible for, Contaminated Material once it is loaded on a vehicle, barge, or other vessel for transport.
3.1.2. Transport material as soon as practical; do not unreasonably stockpile on site.
3.1.3. Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leaching from material.
3.1.4. All vehicles must be watertight. Excess water in material must not be allowed to flow out of vehicle or vessel during transport.
3.1.5. Stabilize material for transport as necessary.
3.1.6. All vehicles, vessels and operators must be appropriately licensed and equipped to transport Contaminated Material.
3.1.7. Barges must be certified by an independent Marine Surveyor for stability.
3.1.8. Manifest and correlate quantities of all Contaminated Material transported from Site documenting nature, type, concentration, and quantity removed from Site. Include all Transfer/Interim Storage, Treatment, and Disposal Facilities. Discrepancies in manifests must be resolved as required by regulations and as acceptable to the Departmental Representative. Discrepancies include:
3.1.8.1. No manifest or an incomplete manifest.
3.1.8.2. Material transported does not match the description in the manifest.
3.1.8.3. Amount transported differs by more than 5% in the manifest.
3.1.8.4. Material transported is in a hazardous condition.
3.1.9. Transfer/Interim Storage Facility must:
3.1.9.1. Be an existing off-site facility located in Canada or the United States.
3.1.9.2. Be designed, constructed and operated for the transfer or interim storage of Contaminated Material.

3.1.9.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the transfer or interim storage of relevant Contaminated Material.

3.1.9.4. Comply with requirements of acts, regulations, bylaws, and other requirements, in force or appropriately adopted as guidelines, including the BC Environmental Management Act and BC Landfill Criteria for Municipal Solid Waste, municipal zoning bylaws, or equivalent.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. Contaminated Soil Disposal will be paid in accordance with unit rate price established for weight of material disposed. Includes Treatment or any other processing of material not required by the Contract but required by Regulations, Disposal Facility, or for other reasons. Measurement as recorded on weigh scale certified by Measurement Canada and results provided to Departmental Representative on Certificates of Disposal.

1.1.2. Contaminated Soil - Residential Quality (exceeding CCME residential guidelines, but less than CSR residential standards) will be paid in accordance with unit rate price established for volume of material stockpiled on-Site. Measurement as recorded by Land Surveyor of stockpile volume.

1.2. Definitions

1.2.1. See 01 11 55.

1.3. Action and Informational Submittals

1.3.1. Contaminated Sites Disposal Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit methods, means, and sequences for Contaminated Sites Disposal 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 for each Disposal Facility:

1.3.1.1. Letter from Contractor's Qualified Professional that the Disposal Facility is: appropriate for the nature, type, concentration, and quantity of Contaminated Material to be Disposed in accordance with any authorization; complies with appropriate government requirements of a general nature (e.g., BC Landfill Criteria); and meets the Disposal Facility Minimum Criteria.

1.3.1.2. Letter from Disposal Facility that they can accept within the schedule in Contract Documents the nature, type, concentration, and quantity of Contaminated Material to be Disposed at the Facility, signed by an authorized representative of the Facility.

1.3.1.3. Copy of permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the Disposal of relevant Contaminated Material.

1.3.2. Certificate of Disposal: within 30 Working Days of disposal at Disposal Facility, Submit documentation verifying that materials have been disposed by Contractor. Include:

1.3.2.1. Issued by the Disposal Facility.

1.3.2.2. On company letterhead.

1.3.2.3. Name and location of facility where the material is being disposed.

1.3.2.4. Date and weight for each shipment received and total weight received at the Disposal Facility.

1.3.2.5. Identification of acceptance of final ownership of material.
1.3.2.6. Signed by identified authorized disposal company representative.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Contaminated Material Disposal

3.1.1. Assume ownership of, and be responsible for, Contaminated Material disposed.
3.1.2. Contaminated Material Disposal: dispose all Contaminated Soil, including on-site or off-site treated Contaminated Material that may no longer be contaminated, at Disposal Facility provided by Contractor and accepted by the Departmental Representative.
3.1.3. Disposal Facility must:
3.1.3.1. Be an existing off-site facility located in Canada or the United States.
3.1.3.2. 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.
3.1.3.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the Disposal of relevant Contaminated Material.
3.1.3.4. Comply with requirements of acts, regulations, bylaws, and other requirements, in force or appropriately adopted as guidelines, including the BC Environmental Management Act and BC Landfill Criteria for Municipal Solid Waste, municipal zoning bylaws, or equivalent.
3.1.4. Dispose material as soon as practical and within 100 Working Days of leaving Site or as required by Contract unless otherwise accepted by Departmental Representative.
3.1.5. Material sent to a Disposal Facility must be permanently stored at that facility.
3.1.6. If proposed Disposal Facility is not acceptable to Departmental Representative, provide an alternate Disposal Facility that is acceptable.

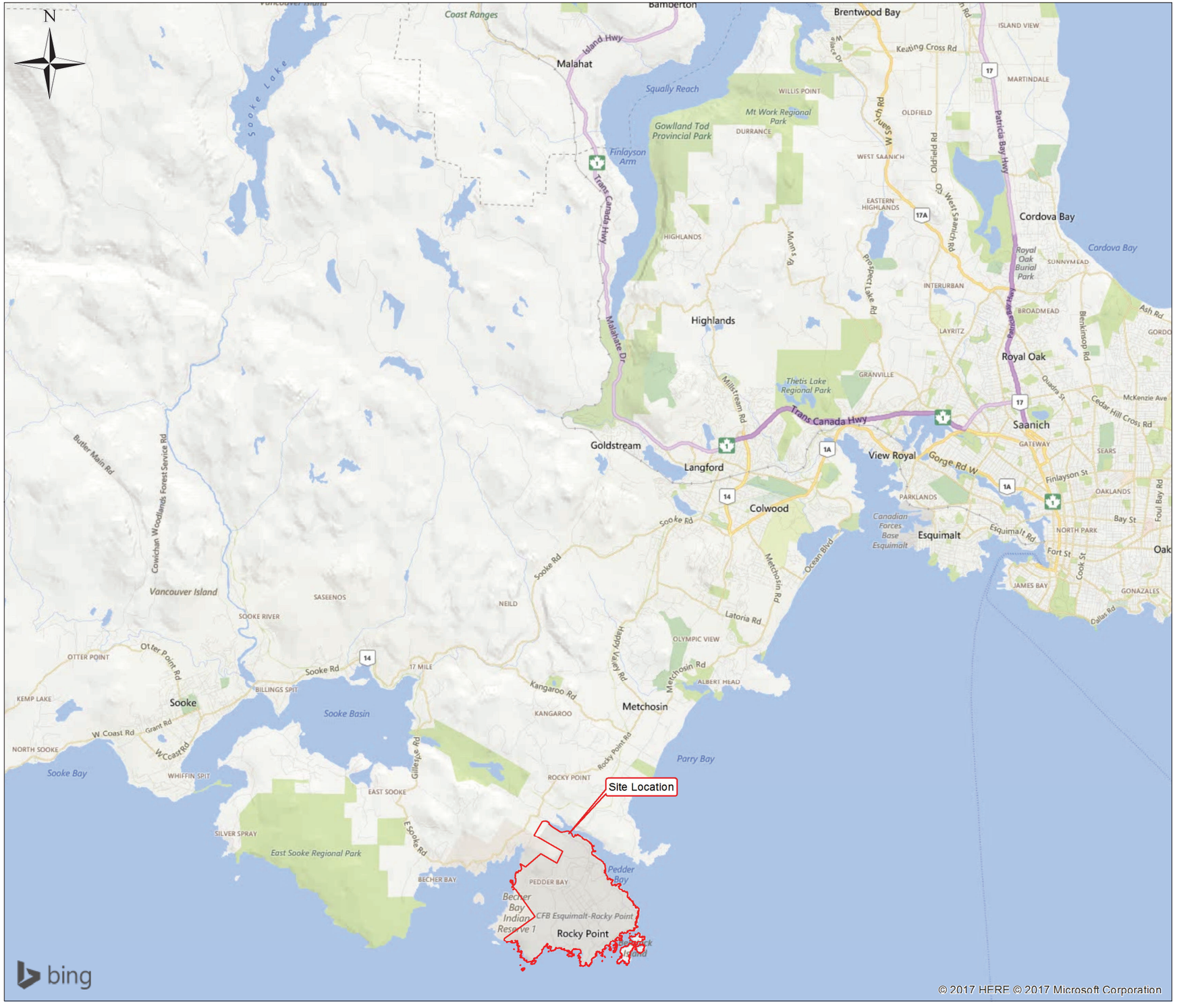
3.2. Disposal Facility Minimum Criteria

3.2.1. Designed, inspected, and monitored by a Qualified Professional.
3.2.2. Installed suitable base liner (e.g., 1.5 mm thick High Density Polyethylene, clayey soil layer with an in-situ permeability of $< 10^{-7}$ cm/sec).
3.2.3. Operational leachate collection system. All leachate collected must be Treated and discharged in compliance with a Discharge Approval.
3.2.4. Closure Plan prepared by a Qualified Professional.

END OF SECTION

Drawings

Drawing No.	Drawing Title
648721-101	CFAD Location Plan
648721-102	RP-14 Site Location
648721-RP14-202	Site Plan
648721-LET01	Site Preparation and Excavation Extents
648721-RP14-LET02	Detailed Soil Analytical Results – Excavation Areas



Legend

CFAD Rocky Point Boundary

NOTES:
1. Original in colour.
2. Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.
3. Intended for illustration purposes, accuracy has not been verified for construction or navigation

REFERENCES:
1.
2. BCGOV ILMB Crown Registry and Geographic Base Branch (CRGB)
(data accessed through www.GeoBC.gov.bc.ca)
3. GPS Data Collected using an eTrex. Accuracy expected to be approximately +/- 3.5m.

REVISIONS:
0 - BY - YYYY-MM-DD - Description - CHK

0 1,350 2,700 5,400 8,100 10,800 Meters

CLIENT:
Public Services and Procurement Canada

PROJECT LOCATION:
Rocky Point Area,
Metchosin, BC

SNC·LAVALIN

Location Plan

BY: DM	SCALE: 1:125,000	DATE: 2017/12/04	REF No: 648721-101 REV: 0
CHK'D: IM	Proj Coord Sys: NAD 1983 UTM Zone 10N		

MXD Path: \\Sli2606\projects\Current Projects\PWGSC\648721-RP 1414.0 Execution\4.5 GIS and Drawings\GIS\648721-101.mxd

Project Path:

Legend

- RP-14 Site Location
- CFAD Rocky Point Boundary

NOTES:
1. Original in colour.
2. Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.
3. Intended for illustration purposes, accuracy has not been verified for construction or

REFERENCES:
Aerial Image, Nov 2017, CRD Regional Map (for reference only)
- data accessed through http://crdatlas.ca/

REVISIONS:

0 0.2 0.4 0.8 1.2 1.6 Kilometers

CLIENT: Public Works and Procurement Canada

PROJECT LOCATION: Rocky Point Areas

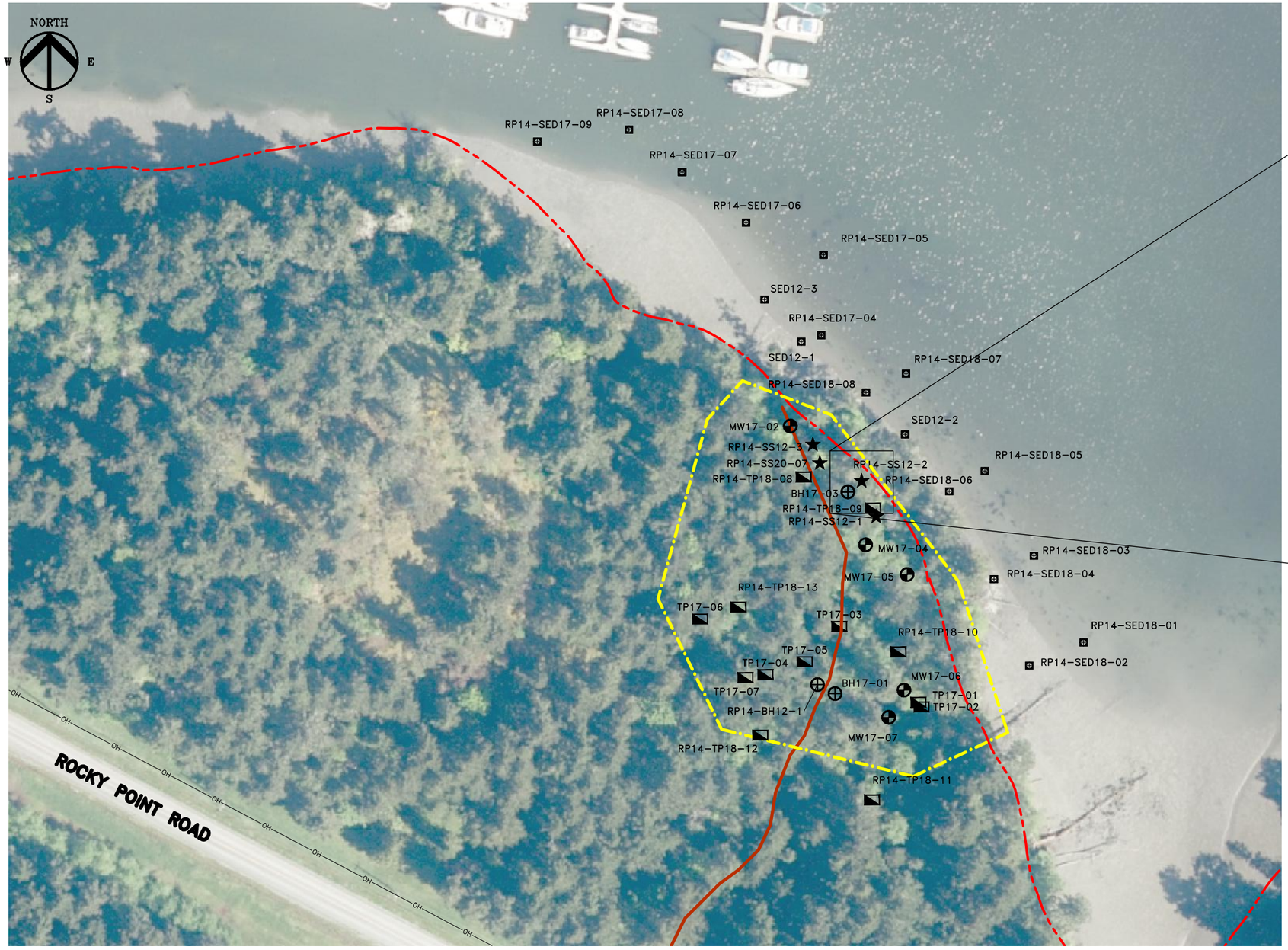
SNC·LAVALIN

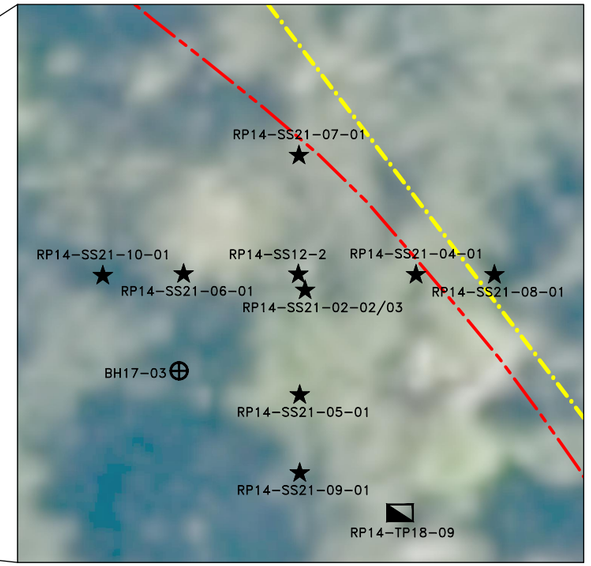
RP-14 Site Location

BY: DM	SCALE: 1:20,000	DATE: 2021-03-09	REF No: 648721-102	REV: 0
CHK'D: IM	Proj Coord Sys: NAD 1983 UTM Zone 10N			

MXD Path: \\SI2606\projects\Current Projects\PWGSC\648721-RP 14\4.0 Execution\4.5 GIS and Drawings\GIS\648721-102.mxd

Project Path:





INSET

0 1 METRES 5

SCALE: 1:150

LEGEND

0 5 10 METRES 50

- SUBJECT PROPERTY LIMITS
- RP-14 PROJECT AREA
- FORMER SERVICE ROAD
- SURFACE SAMPLE
- TEST PIT
- BOREHOLE
- MONITORING WELL
- SEDIMENT SAMPLE LOCATION

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED PRIOR TO INTRUSIVE WORK. NOT ALL UTILITIES MAY BE SHOWN.

REFERENCE DRAWINGS

AERIAL IMAGE	NOV 2017	CRD REGIONAL MAP (FOR REFERNCE ONLY)
DWG. NO.	DATE	DESCRIPTION

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
1	2021-03-24	ISSUED TO CLIENT	PRT	IM
0	2021-02-26	ISSUED TO CLIENT AS DRAFT	PRT	IM

SNC·LAVALIN

CLIENT NAME: PUBLIC SERVICES AND PROCUREMENT CANADA

PROJECT LOCATION: RP-14, CFAD ROCKY POINT, METCHOSIN, BC

TITLE:

SITE PLAN

DWN BY: PRT	SCALE: 1:1000	DATE: 2021-02-19	DWG No: REV.: 1
CHK'D: IM	PLOT: 20210514.1447	CADFILE: 648721_R4	648721-RP14-202

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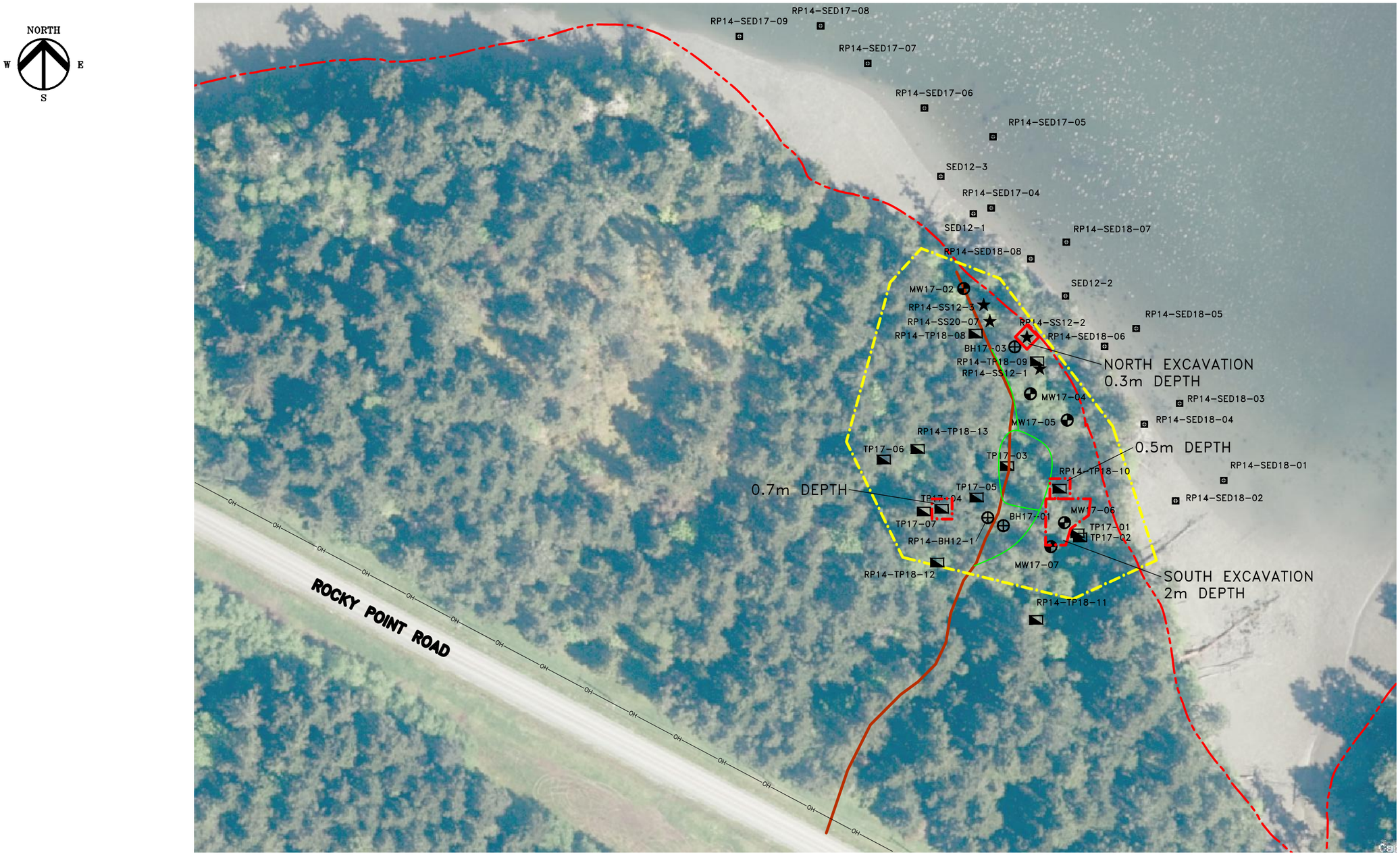

LEGEND

0 5 10 METRES 50

- SUBJECT PROPERTY LIMITS
- OH OVERHEAD LINE
- RP-14 PROJECT AREA
- ACCESS ROAD – CLEARING TO BE DETERMINED BY CONTRACTOR
- APPROXIMATE NEW EXCAVATION ACCESS AND TURNAROUND ROAD TO BE CLEARED AND STABILIZED AS DETERMINED BY CONTRACTOR
- ESTIMATED EXCAVATION EXTENT
- SURFACE SAMPLE
- TEST PIT
- BOREHOLE
- MONITORING WELL
- SEDIMENT SAMPLE LOCATION

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED PRIOR TO INTRUSIVE WORK. NOT ALL UTILITIES MAY BE SHOWN.
3. ALL DIMENSIONS ARE APPROXIMATE. TO BE VERIFIED BY CONTRACTOR.
4. FOR THE PURPOSES OF UNIT RATE ESTIMATION, ASSUME:
   - 1:1 SLOPE SHORING FROM EDGES OF EXCAVATIONS
   - EXCAVATION DEWATERING VOLUME REQUIRED EQUIVALENT TO 1 FULL HYDROVAC
   - EXCAVATION IN 0.3 M LIFTS SEGREGATED AND STOCKPILED FOR EX-SITU QUALITY CHARACTERIZATION PRIOR TO DISPOSAL
   - ACCESS ROAD SHOWN FOR ILLUSTRATION PURPOSES ONLY – CONTRACTOR TO VERIFY ROUTE ACCORDING TO CONTRACT AND ENVIRONMENTAL EFFECTS DETERMINATION

REFERENCE DRAWINGS

AERIAL IMAGE	NOV 2017	CRD REGIONAL MAP (FOR REFERNCE ONLY)
DWG. NO.	DATE	DESCRIPTION

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
2	2021-03-24	ISSUED TO CLIENT	PRT	IM
1	2021-02-26	ISSUED TO CLIENT AS DRAFT	PRT	IM
0	2020-12-01	ISSUED AS FINAL	PRT	WC

SNC·LAVALIN

CLIENT NAME: PUBLIC SERVICES AND PROCUREMENT CANADA

PROJECT LOCATION: RP-14, CFAD ROCKY POINT, METCHOSIN, BC

TITLE:

SITE PREPARATION AND EXCAVATION EXTENTS

DWN BY: PRT	SCALE: 1:1000	DATE: 2020-11-20	DWG No: REV.: 2
CHK'D: WC	PLOT: 20210525.1532	CADFILE: 648721_R4	648721-LET01

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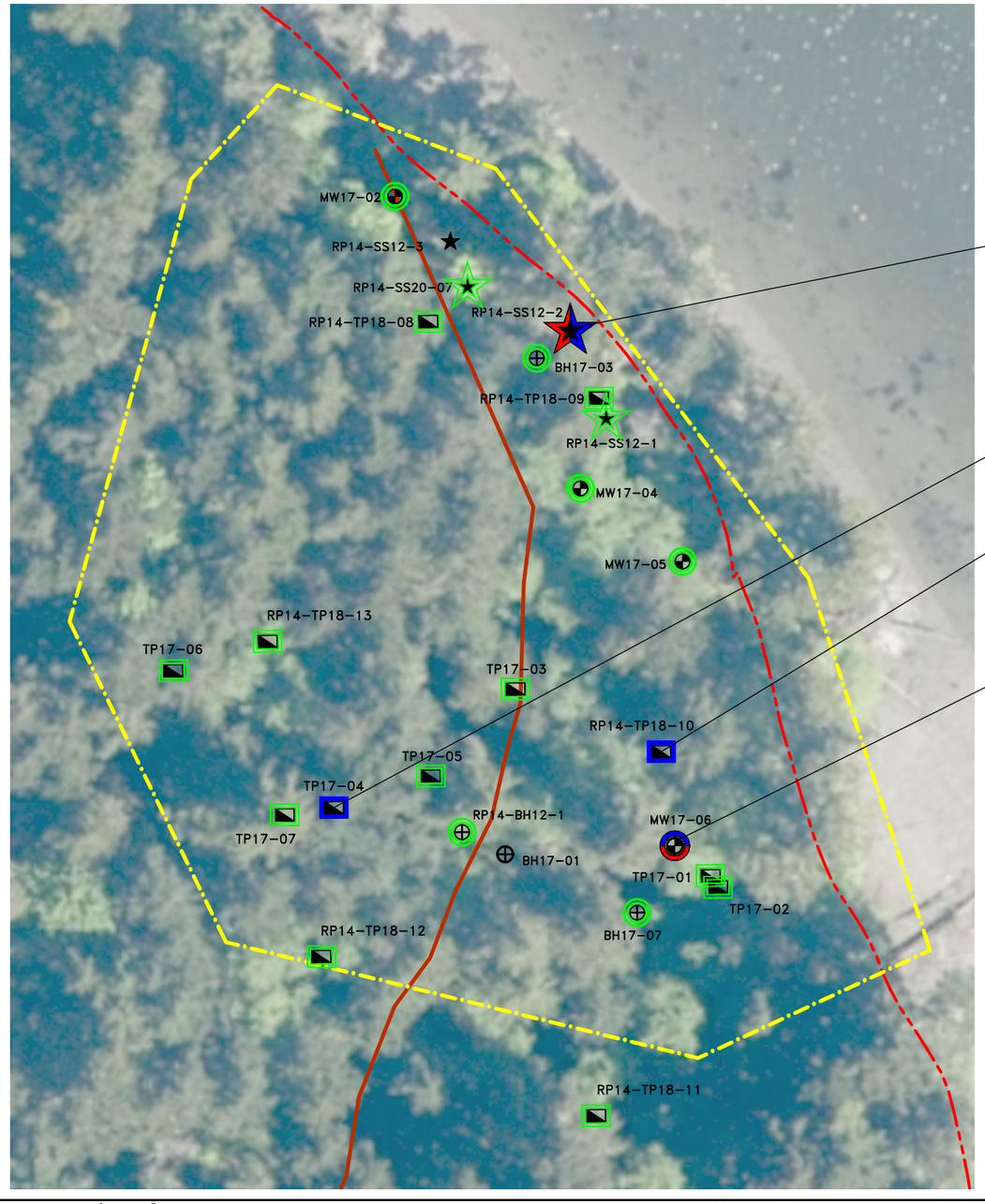
NORTH
W E
S



SS12-2	Sample Depth	As	Cr	Cu	Pb	Ni	Sn	Zn
RP14-SS12-2-120224	0.0 – 0.1	42.1	84.1	268	2,070	142	879	854

RP14-TP17-04	Sample Depth	F2-F4	PAH	As	Cr	Cu	Pb	Ni	Sn	Zn
RP14-TP17-04-01	0.2 – 0.5	<STD	<STD	4.8	40	55.7	10.5	33.7	1.3	1,680

RP14-TP18-10	Sample Depth	BETX/F1	As	Cr	Cu	Pb	Ni	Sn	Zn
RP14-TP18-10-01	0.0 – 0.2	–	6.0	74	258	368	35.3	54.7	1,420
RP14-TP18-10-05	1.4 – 1.5	<STD	2.4	29	21.6	34.3	24.9	1.3	82
RP14-TP18-10-06	DUPLICATE	–	3.1	34	47.8	24.7	30.3	1.6	216

RP14-BH17-06	Sample Depth	BETX/F1	F2-F4	PAH	As	Cr	Cu	Pb	Ni	Sn	Zn
RP14-BH17-06-01	0.2 – 0.3	<STD	<STD	<STD	7.2	39	73.8	58.1	35.9	90.5	1,150
RP14-BH17-06-03	1.4 – 1.5	<STD	<STD	<STD	8.4	94	211	1,290	38.5	373	8,610
RP14-BH17-06-04	2.0 – 2.3	–	–	–	7.2	57	47.9	7.4	61.1	0.8	97
RP14-BH17-06-07	3.7 – 4.0	–	–	–	9.8	53	64.7	7.3	54.2	1.1	146

LOCATION

ANALYTICAL SOIL RESULTS

SS12-2	Sample Depth	As	Cr	Cu	Pb	Ni	Sn	Zn
RP14-SS12-2-120224	0.0 – 0.1	42.1	84.1	268	2,070	142	879	854

SAMPLE ID

DEPTH OF SAMPLE (m)

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE STANDARD

BLUE – CONCENTRATION GREATER THAN THE APPLICABLE CCME CEQG IL GUIDELINES (µg/g)

	As	Cr	Cu	Pb	Ni	Sn	Zn
CCME CEQG IL GUIDELINES (µg/g)	12	87	91	600	89	300	360

Sb ANTIMONY
As ARSENIC
Cd CADMIUM
Cr CHROMIUM
Cu COPPER
Pb LEAD
Mo MOLYBDENUM
Ni NICKEL
Sn TIN
Zn ZINC

LEGEND

- SUBJECT PROPERTY LIMITS
- RP-14 PROJECT AREA
- FORMER SERVICE ROAD
- SURFACE SAMPLE
- TEST PIT
- BOREHOLE
- MONITORING WELL
- SEDIMENT SAMPLE LOCATION

0 5 METRES 25

- CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE STANDARD
- CONCENTRATION GREATER THAN THE APPLICABLE CCME CEQG IL GUIDELINES (µg/g)
- TCLP LEAD GREATER THAN THE APPLICABLE HAZERDOUS WASTE REGULATION

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED PRIOR TO INTRUSIVE WORK. NOT ALL UTILITIES MAY BE SHOWN.

REFERENCE DRAWINGS

AERIAL IMAGE	NOV 2017	CRD REGIONAL MAP (FOR REFERNCE ONLY)
DWG. NO.	DATE	DESCRIPTION

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
0	2021-03-24	ISSUED TO CLIENT	PRT	IM

CLIENT NAME:
RP-14, CFAD ROCKY POINT, METCHOSIN, BC

PROJECT LOCATION:
PUBLIC SERVICES AND PROCUREMENT CANADA

SNC·LAVALIN

TITLE:
DETAILED SOIL ANALYTICAL RESULTS - EXCAVATION AREAS

DWN BY: PRT	SCALE: 1:500	DATE: 2021-03-08	DWG No:	REV.: 0
CHK'D: IM	PLOT: 20210525.1414	CADFILE: 648721_R4	648721-RP14-LET02	

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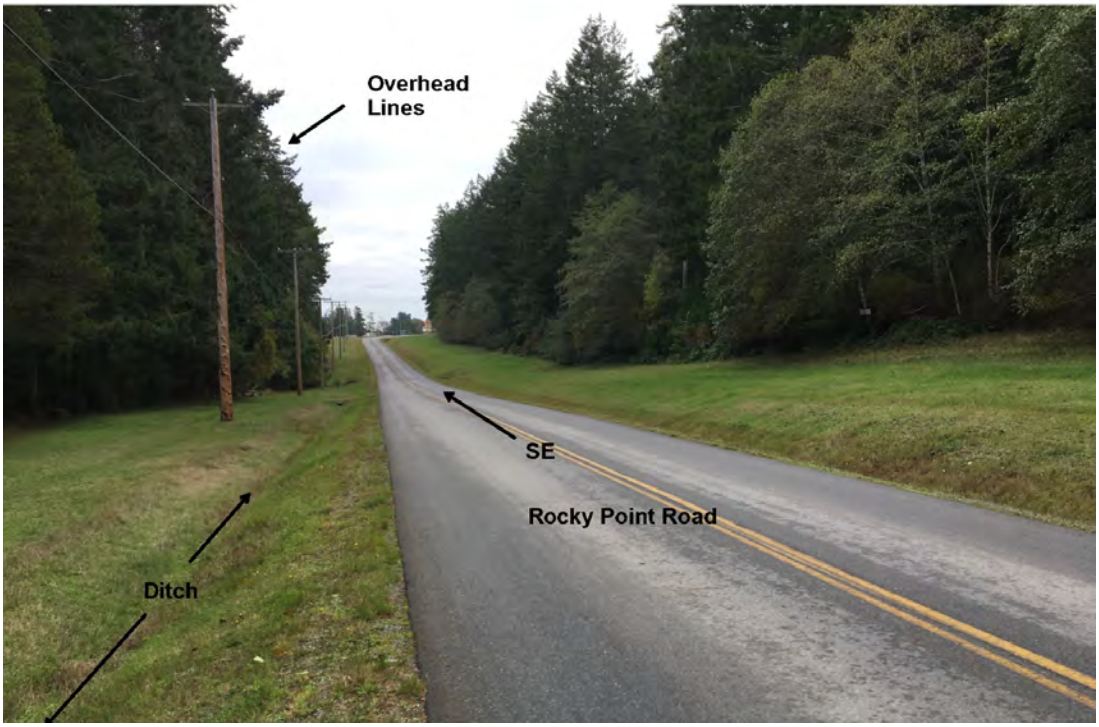
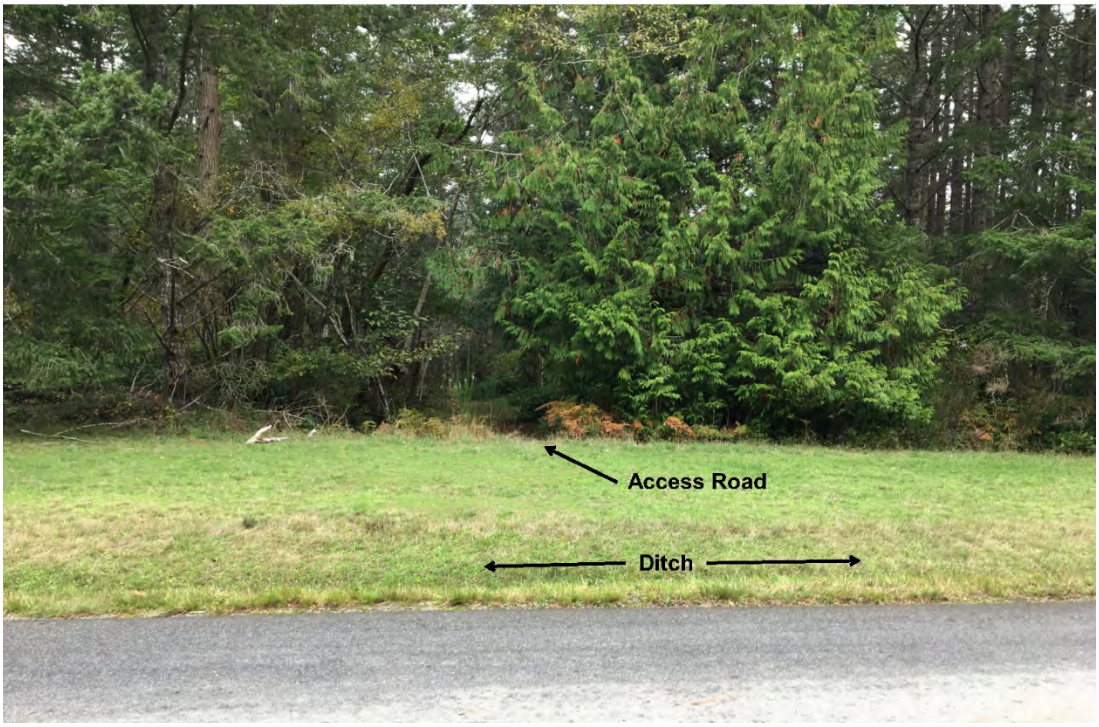
Annex A. Site Photographs



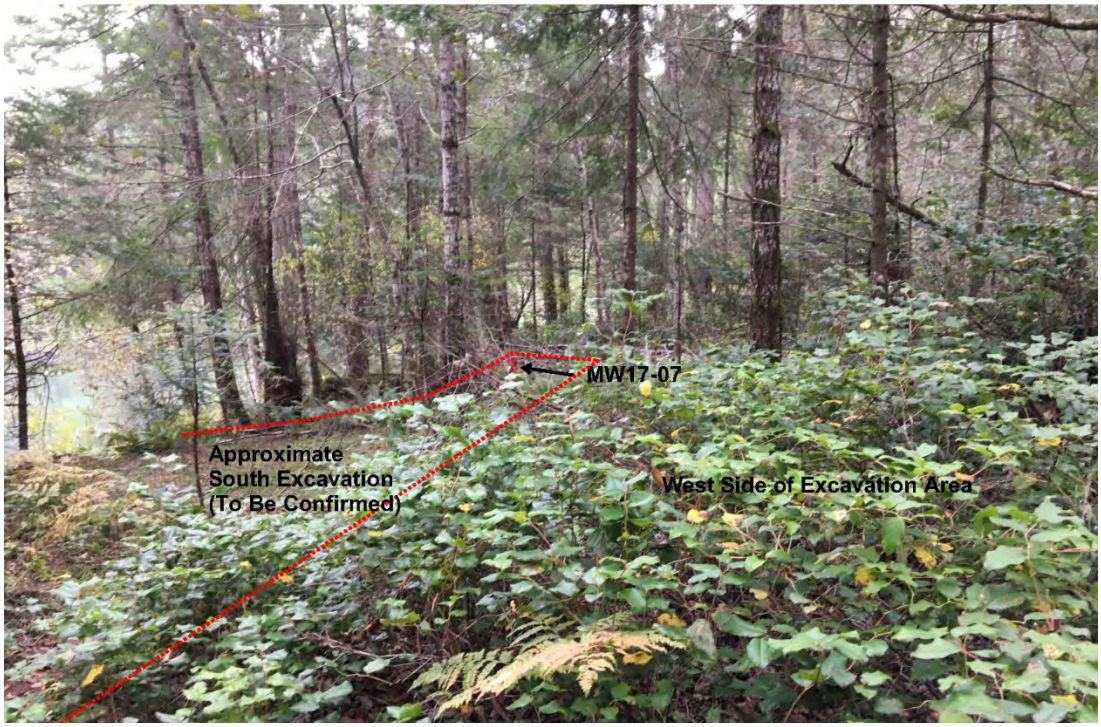
Photograph 1: Rocky Point Road adjacent to access road entrance, looking southeast.



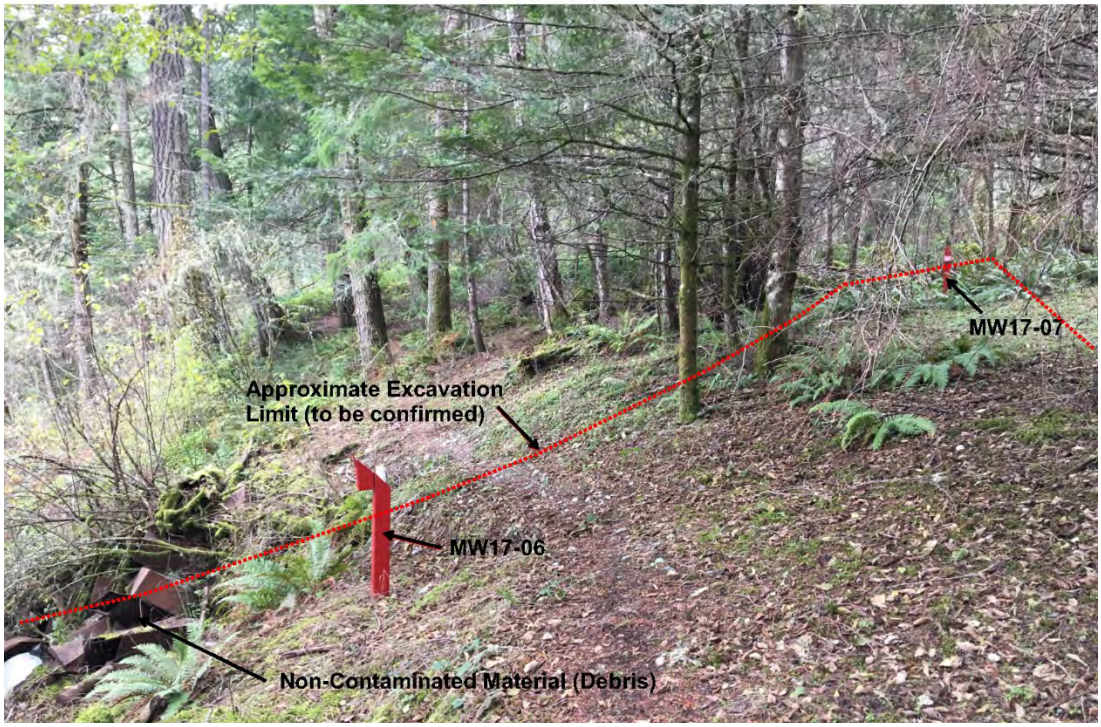
Photograph 2: Entrance to access road off Rocky Point Road, looking northeast.

Photograph 3: Access road, looking northeast from entrance.

Photograph 4: Access Road showing built-up road bed, looking northeast.



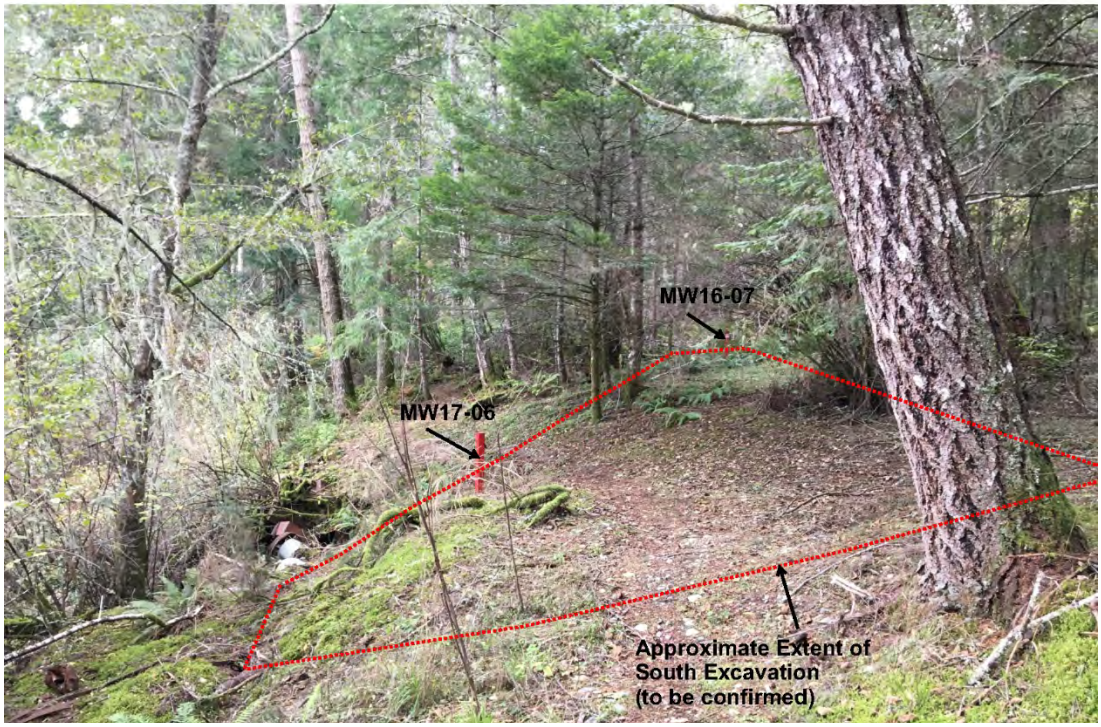
Photograph 5: South excavation area, looking south, showing accessibility on west side (excavation extent to be confirmed by contractor prior to start of work).



Photograph 6: South excavation area, looking south (excavation extent to be confirmed by contractor prior to start of work).

Photograph 7: East edge of southern excavation showing non-contaminated debris (excavation extent to be confirmed by contractor prior to start of work).

Photograph 8: Northern portion of south excavation, looking north (excavation extent to be confirmed by contractor prior to start of work).



Photograph 9: South excavation area, looking south (excavation extent to be confirmed by contractor prior to start of work).

Photograph 10: North excavation area, looking southeast showing access road (excavation extent to be confirmed by contractor prior to start of work).

Photograph 11: East-northeast view of north excavation area looking east (excavation extent to be confirmed by contractor prior to start of work).

Photograph 12: North excavation area, looking southeast showing access road (excavation extent to be confirmed by contractor prior to start of work).

Photograph 13: North excavation area, looking north-northeast toward bay (excavation extent to be confirmed by contractor prior to start of work).

Photograph 14: North excavation area, looking north-northeast toward bay (excavation extent to be confirmed by contractor prior to start of work).

Photograph 15: North excavation area, looking north
(excavation extent to be confirmed by contractor prior to start of work).

Annex B. Environmental Data

- Soil Analytical Data

TABLE 1: Soil Sample Log

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Sample Type	Description	North (m)	East (m)	Depth (m)	Headspace (ppm)
SS12-1	RP14-SS12-1-120224	2012 02 24	Surface Sample	SILT, some organics, brown, loose, moist, rootlets.	5354963.1	457815.1	0.0-0.1	-
SS12-2	RP14-SS12-2-120224	2012 02 24	Surface Sample	SILT, organics, black, wet, loose, glass, metal debris.	5354969.1	457818.9	0.0-0.1	-
SS12-3	RP14-SS12-3-120224	2012 02 24	Surface Sample	SILT, organics, brown, loose, wet, rootlets, metal debris.	5354976.9	457802.1	0.0-0.1	-
RP14-SS20-07	RP14-SS20-07	2020 09 30	Surface Sample	SILT, clayey, sandy, fine to coarse grained, firm, moist, trace organics.	0	0	0.0-0.2	-

TABLE 2: Summary of Analytical Results for Soil and Sediment - Grain Size

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Grain Size		
				Particle size (>75 µm) (%)	Particle size (<75 µm) (%)	Grain Type (Fine / Coarse)
RP14						
BH12-1	RP14-BH12-1-1-120213	2012 02 13	0.1 - 0.1	67.3	36.7	Coarse
	RP14-BH12-1-3-120213	2012 02 13	2.4 - 2.6	27.1	72.9	Fine
SED12-2	RP14-SED12-2-120216	2012 02 16	0.3 - 0.5	41.2	58.8	Fine

Associated ALS files: L1114782, L1118609.
All terms defined within the body of SNC-Lavalin's report.

TABLE 3: Summary of Analytical Results for Soil - Hydrocarbons

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[a] (ppm)	Monocyclic Aromatic Hydrocarbons				Petroleum Hydrocarbon Fractions				
					Benzene µg/g	Ethylbenzene µg/g	Toluene µg/g	Xylenes µg/g	F1-BTEX µg/g	F2 (>C10-C16) µg/g	F3 (>C16-C34) µg/g	F4 (>C34-C50) µg/g	MTBE (µg/g)
BH12-1	RP14-BH12-1-1-120213	2012 02 13	0.1 - 0.1	225	< 0.005	< 0.015	< 0.05	< 0.075	< 10	< 30	< 50	< 50	< 0.2
	RP14-BH12-1-4-120213	2012 02 13	4.0 - 4.1	50	-	-	-	-	-	< 30	< 50	< 50	-
RP14-BH17-02	RP14-BH17-02-01	2017 10 26	0.0 - 0.3	0	< 0.005	< 0.01	0.09	< 0.05	< 10	< 20	< 20	< 20	-
	RP14-BH17-02-02	2017 10 26	0.8 - 0.9	0	< 0.005	< 0.01	< 0.05	< 0.05	< 10	< 20	29	20	-
RP14-BH17-03	RP14-BH17-03-01	2017 10 26	0.0 - 0.3	0	< 0.005	< 0.01	< 0.05	< 0.05	< 10	< 20	20	< 20	-
RP14-BH17-04	RP14-BH17-04-07	2017 10 26	3.5 - 3.8	0	< 0.005	< 0.01	< 0.05	< 0.05	< 10	< 20	< 20	< 20	-
RP14-BH17-05	RP14-BH17-05-01	2017 10 26	0.0 - 0.3	0	< 0.005	< 0.01	< 0.05	< 0.05	< 10	< 20	< 20	< 20	-
RP14-BH17-06	RP14-BH17-06-01	2017 10 27	0.2 - 0.3	0	< 0.005	< 0.01	0.08	< 0.05	< 10	< 20	47	56	-
	RP14-BH17-06-03	2017 10 27	1.4 - 1.5	0	< 0.005	< 0.01	< 0.05	< 0.05	< 10	< 20	63	42	-
RP14-BH17-07	RP14-BH17-07-02	2017 10 27	0.8 - 0.9	0	< 0.005	< 0.01	< 0.05	< 0.05	< 10	< 20	< 20	< 20	-
	RP14-BH17-07-03	Duplicate	0.8 - 0.9	0	< 0.005	< 0.01	< 0.05	< 0.05	< 10	< 20	< 20	< 20	-
	QA/QC RPD%				*	*	*	*	*	*	*	*	-
	RP14-BH17-07-05	2017 10 27	2.0 - 2.1	0	< 0.005	< 0.01	< 0.05	< 0.05	< 10	< 20	< 20	< 20	-
RP14-TP17-01	RP14-TP17-01-02	2017 10 27	0.8 - 0.9	0	-	-	-	-	-	< 20	< 20	< 20	-
RP14-TP17-02	RP14-TP17-02-01	2017 10 27	0.0 - 0.2	0	-	-	-	-	-	< 20	< 20	< 20	-
RP14-TP17-04	RP14-TP17-04-01	2017 10 27	0.2 - 0.5	0	-	-	-	-	-	< 20	< 20	< 20	-
RP14-TP17-05	RP14-TP17-05-01	2017 10 27	0.1 - 0.3	0	-	-	-	-	-	< 20	< 20	< 20	-
RP14-TP18-10	RP14-TP18-10-05	2018 02 14	1.4 - 1.5	0	< 0.04	< 0.1	< 0.1	< 0.2	-	-	-	-	< 0.2
RP14-TP18-13	RP14-TP18-13-02	2018 02 14	0.3 - 0.5	0	< 0.02	< 0.05	< 0.05	< 0.2	-	-	-	-	< 0.1
Federal Guideline													
CCME CEQG Industrial Surface (IL Surface)[c]					1	50	250[c]	37	320	260	1,700	3,300	n/a
CCME CEQG Industrial Subsoil (IL Subsoil)[c]					1	50	500[c]	37	700	380	3,500	10,000	n/a

Associated ALS files: L1114782.
Associated AGAT file(s): 17V280494, 18V312173.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

BOLD Concentration greater than CCME CEQG Industrial (IL) Guideline

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] Pathways Included: Eco Soil Contact, Management Limit, Nutrient and energy-cycling check, Offsite Migration, Protection of Groundwater for Marine Aquatic Life, Direct Contact (particulate inhalation), Soil Dermal Contact, Soil Ingestion, Historical Guideline, Soil General.
[c] Toluene guideline does not include aquatic life pathway (applicable only to freshwater).

TABLE 4: Summary of Analytical Results for Soil - Polycyclic Aromatic Hydrocarbons

Sample Location		BH12-1	RP14-BH17-02		RP14-BH17-03	RP14-BH17-04	RP14-BH17-05	RP14-BH17-06		Federal Guideline
Sample ID		RP14-BH12-1-1-120213	RP14-BH17-02-01	RP14-BH17-02-02	RP14-BH17-03-01	RP14-BH17-04-07	RP14-BH17-05-01	RP14-BH17-06-01	RP14-BH17-06-03	CCME CEQG
Sample Date (yyyy mm dd)		2012 02 13	2017 10 26	2017 10 26	2017 10 26	2017 10 26	2017 10 26	2017 10 27	2017 10 27	Industrial
Depth Interval (m)		0.1 - 0.1	0.0 - 0.3	0.8 - 0.9	0.0 - 0.3	3.5 - 3.8	0.0 - 0.3	0.2 - 0.3	1.4 - 1.5	(IL)[b]
Field Screen (ppm)[a]		225	0	0	0	0	0	0	0	
Parameter	**Units**	**Analytical Results**								
Polycyclic Aromatic Hydrocarbons										
Naphthalene	µg/g	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	22
Methylnaphthalene, 1-	µg/g	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	n/a
Methylnaphthalene, 2-	µg/g	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	n/a
Acenaphthylene	µg/g	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	n/a
Acenaphthene	µg/g	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	n/a
Fluorene	µg/g	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	n/a
Phenanthrene	µg/g	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	50
Anthracene	µg/g	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	32
Fluoranthene	µg/g	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	180
Pyrene	µg/g	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	100
Benz(a)anthracene	µg/g	< 0.01	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	10
Chrysene	µg/g	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	n/a
Benzo(b)fluoranthene	µg/g	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10
Benzo(j)fluoranthene	µg/g	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	n/a
Benzo(b+j)fluoranthene	µg/g	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10
Benzo(k)fluoranthene	µg/g	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10
Benzo(a)pyrene	µg/g	< 0.01	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	72
Indeno(1,2,3-cd)pyrene	µg/g	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	10
Dibenz(a,h)anthracene	µg/g	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	10
Benzo(g,h,i)perylene	µg/g	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	n/a
Quinoline	µg/g	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	n/a
B(a)P Equivalency	µg/g	< 0.15	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	5.3[d]
Index of Additive Cancer Risk	µg/g	< 0.02	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	n/a

Associated ALS files: L1114782.
Associated AGAT file(s): 17V280494.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

BOLD Concentration greater than CCME CEQG Industrial (IL) Guideline

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] Pathways Included: Eco Soil Contact, Management Limit, Nutrient and energy-cycling check, Offsite Migration, Protection of Groundwater for Marine Aquatic Life, Direct Contact (particulate inhalation), Soil Dermal Contact, Soil Ingestion, Historical Guideline, Soil General.
[c] Guidelines use 10-5 incremental risk.

TABLE 4: Summary of Analytical Results for Soil - Polycyclic Aromatic Hydrocarbons

Sample Location		RP14-BH17-07				RP14-TP17-01	RP14-TP17-02	RP14-TP17-04	RP14-TP17-05	Federal Guideline
Sample ID		RP14-BH17-07-02	RP14-BH17-07-03	QA/QC	RP14-BH17-07-05	RP14-TP17-01-02	RP14-TP17-02-01	RP14-TP17-04-01	RP14-TP17-05-01	CCME CEQG
Sample Date (yyyy mm dd)		2017 10 27	Duplicate	RPD %	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	Industrial
Depth Interval (m)		0.8 - 0.9	0.8 - 0.9		2.0 - 2.1	0.8 - 0.9	0.0 - 0.2	0.2 - 0.5	0.1 - 0.3	(IL)[b]
Field Screen (ppm)[a]		0	0		0	0	0	0	0	
Parameter	**Units**	**Analytical Results**								
Polycyclic Aromatic Hydrocarbons										
Naphthalene	µg/g	< 0.005	< 0.005	*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	22
Methylnaphthalene, 1-	µg/g	< 0.005	< 0.005	*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	n/a
Methylnaphthalene, 2-	µg/g	< 0.005	< 0.005	*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	n/a
Acenaphthylene	µg/g	< 0.005	< 0.005	*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	n/a
Acenaphthene	µg/g	< 0.005	< 0.005	*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	n/a
Fluorene	µg/g	< 0.02	< 0.02	*	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	n/a
Phenanthrene	µg/g	< 0.02	< 0.02	*	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	50
Anthracene	µg/g	< 0.004	< 0.004	*	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	32
Fluoranthene	µg/g	< 0.01	< 0.01	*	< 0.01	< 0.01	0.03	< 0.01	< 0.01	180
Pyrene	µg/g	< 0.01	< 0.01	*	< 0.01	< 0.01	0.02	< 0.01	< 0.01	100
Benz(a)anthracene	µg/g	< 0.03	< 0.03	*	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	10
Chrysene	µg/g	< 0.05	< 0.05	*	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	n/a
Benzo(b)fluoranthene	µg/g	< 0.05	< 0.05	*	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10
Benzo(j)fluoranthene	µg/g	< 0.05	< 0.05	*	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	n/a
Benzo(b+j)fluoranthene	µg/g	< 0.05	< 0.05	*	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10
Benzo(k)fluoranthene	µg/g	< 0.05	< 0.05	*	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10
Benzo(a)pyrene	µg/g	< 0.03	< 0.03	*	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	72
Indeno(1,2,3-cd)pyrene	µg/g	< 0.02	< 0.02	*	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	10
Dibenz(a,h)anthracene	µg/g	< 0.005	< 0.005	*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	10
Benzo(g,h,i)perylene	µg/g	< 0.05	< 0.05	*	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	n/a
Quinoline	µg/g	< 0.05	< 0.05	*	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	n/a
B(a)P Equivalency	µg/g	< 0.05	< 0.05	*	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	5.3[d]
Index of Additive Cancer Risk	µg/g	< 0.6	< 0.6	*	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	n/a

Associated ALS files: L1114782.
Associated AGAT file(s): 17V280494.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
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RPD Denotes relative percent difference.
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RDL Denotes reported detection limit.

BOLD Concentration greater than CCME CEQG Industrial (IL) Guideline

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] Pathways Included: Eco Soil Contact, Management Limit, Nutrient and energy-cycling check, Offsite Migration, Protection of Groundwater for Marine Aquatic Life, Direct Contact (particulate inhalation), Soil Dermal Contact, Soil Ingestion, Historical Guideline, Soil General.
[c] Guidelines use 10-5 incremental risk.

TABLE 5: Summary of Analytical Results for Soil - Total Metals

Sample Location		BH12-1		SS12			RP14-BH17-02		RP14-BH17-03	RP14-BH17-04				RP14-BH17-05	Federal Guideline
Sample ID		RP14-BH12-1-1-120213	RP14-BH12-1-4-120213	RP14-SS12-1-120224	RP14-SS12-2-120224	RP14-SS12-3-120224	RP14-BH17-02-01	RP14-BH17-02-02	RP14-BH17-03-01	RP14-BH17-04-03	RP14-BH17-04-04	QA/QC	RP14-BH17-04-07	RP14-BH17-05-01	CCME CEQG
Sample Date (yyyy mm dd)		2012 02 13	2012 02 13	2012 02 24	2012 02 24	2012 02 24	2017 10 26	2017 10 26	2017 10 26	2017 10 26	Duplicate	RPD %	2017 10 26	2017 10 26	Industrial
Depth Interval (m)		0.1 - 0.1	4.0 - 4.1	0.0 - 0.1	0.0 - 0.1	0.0 - 0.1	0.0 - 0.3	0.8 - 0.9	0.0 - 0.3	1.4 - 1.5	1.4 - 1.5		3.5 - 3.8	0.0 - 0.3	(IL)[a]
Parameter	**Units**	**Analytical Results**													
Physical Parameters															
pH	pH	-	7.46	-	-	-	***5.84***	***5.90***	***5.49***	7.17	7.21	1	7.47	6.13	6.0 - 8.0
Total Metals															
Aluminum	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Antimony	µg/g	0.14	0.31	0.28	39.9	0.4	0.2	0.2	0.2	0.3	0.3	*	0.2	0.2	40
Arsenic	µg/g	2.43	7.74	4.34	***42.1***	3.79	6.0	4.9	6.0	6.9	6.0	14	4.5	4.3	12
Barium	µg/g	44.9	82.9	89.4	87.8	175	63.4	123	101	77.2	82.2	6	44.1	168	2,000
Beryllium	µg/g	0.24	0.49	0.35	< 0.2	0.39	0.3	0.4	0.5	0.3	0.4	*	0.3	0.4	8
Boron	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Cadmium	µg/g	0.104	0.096	0.397	2.81	0.721	0.12	0.13	0.09	0.12	0.12	0	0.12	0.27	22
Chromium	µg/g	25	57.3	34.8	84.1	28.4	32	34	40	41	42	2	38	33	87
Cobalt	µg/g	9.67	18.4	10.5	26.4	10.7	14.4	10.7	13.3	13.7	14.2	4	16.1	13.2	300
Copper	µg/g	35.3	57.7	49.6	***268***	38.2	57.7	24.7	34.2	34.5	35.9	4	61.8	22.5	91
Iron	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Lead	µg/g	8.48	5.75	27.5	***2,070***	23.2	6.4	7.6	7.7	4.4	4.7	7	3.0	7.9	600
Lithium	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Manganese	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Mercury	µg/g	0.0203	0.0571	0.0317	0.166	0.0356	0.03	0.04	0.06	0.04	0.03	*	0.03	0.03	50
Molybdenum	µg/g	< 0.5	< 0.5	< 0.5	20.3	0.62	0.4	0.4	0.5	0.3	0.3	*	0.3	0.3	40
Nickel	µg/g	19.3	46.9	24.1	***142***	26.2	29.4	29.5	32.8	38.5	40.7	6	33.0	32.8	89
Selenium	µg/g	< 0.2	< 0.2	0.25	0.23	0.26	0.5	0.3	0.5	0.2	0.2	*	0.2	0.4	2.9
Silver	µg/g	< 0.1	< 0.1	< 0.1	0.66	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	*	< 0.5	< 0.5	40
Strontium	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Thallium	µg/g	< 0.05	0.059	0.058	< 0.05	0.065	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	*	< 0.1	< 0.1	1
Tin	µg/g	< 2	< 2	17.1	***879***	3.6	0.8	0.5	1.2	0.4	0.4	*	0.4	0.5	300
Tungsten	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Uranium	µg/g	0.189	0.377	0.345	< 0.05	0.478	0.3	0.5	0.5	0.4	0.4	*	0.3	0.5	300
Vanadium	µg/g	62.5	101	68.5	6.06	67.8	80	65	79	69	75	8	89	63	130
Zinc	µg/g	77.2	77.8	112	***854***	***649***	58	53	60	62	68	9	64	85	410

Associated ALS files: L1114782, L1118609.
Associated AGAT file(s): 17V280494, 18V312173.
Associated Bureau Veritas Laboratories file(s): C071430.
All terms defined within the body of SNC-Lavalin's report.
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- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

BOLD Concentration greater than CCME CEQG Industrial (IL) Guideline

[a] Pathways Included: Eco Soil Contact, Management Limit, Nutrient and energy-cycling check, Offsite Migration, Protection of Groundwater for Marine Aquatic Life, Direct Contact (particulate inhalation), Soil Dermal Contact, Soil Ingestion, Historical Guideline, Soil General.

TABLE 5: Summary of Analytical Results for Soil - Total Metals

Sample Location		RP14-BH17-06				RP14-BH17-07			RP14-TP17-01		RP14-TP17-02		RP14-TP17-03	RP14-TP17-04	RP14-TP17-05	Federal Guideline
Sample ID		RP14-BH17-06-01	RP14-BH17-06-03	RP14-BH17-06-04	RP14-BH17-06-07	RP14-BH17-07-01	RP14-BH17-07-02	RP14-BH17-07-05	RP14-TP17-01-02	RP14-TP17-01-03	RP14-TP17-02-01	RP14-TP17-02-02	RP14-TP17-03-01	RP14-TP17-04-01	RP14-TP17-05-01	CCME CEQG Industrial (IL)[a]
Sample Date (yyyy mm dd)		2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	2017 10 27	
Depth Interval (m)		0.2 - 0.3	1.4 - 1.5	2.0 - 2.3	3.7 - 4.0	0.0 - 0.2	0.8 - 0.9	2.0 - 2.1	0.8 - 0.9	1.4 - 1.5	0.0 - 0.2	0.8 - 0.9	0.0 - 0.3	0.2 - 0.5	0.1 - 0.3	
Parameter	**Units**	**Analytical Results**														
Physical Parameters																
pH	pH	***5.89***	6.69	7.07	7.32	7.45	7.77	7.82	***5.55***	***5.66***	***5.60***	***5.95***	6.16	6.06	***5.70***	6.0 - 8.0
Total Metals																
Aluminum	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Antimony	µg/g	0.6	3.8	0.3	0.3	-	0.3	0.3	0.1	0.1	0.2	0.2	0.2	0.3	0.3	40
Arsenic	µg/g	7.2	8.4	7.2	9.8	-	6.3	6.0	4.1	5.4	4.2	3.3	3.7	4.8	4.4	12
Barium	µg/g	92.3	238	99.8	96.2	-	81.0	70.3	81.0	71.5	128	251	70.6	117	127	2,000
Beryllium	µg/g	0.4	0.5	0.4	0.5	-	0.4	0.4	0.3	0.2	0.4	0.4	0.3	0.5	0.5	8
Boron	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Cadmium	µg/g	11.1	9.01	0.17	0.46	-	0.12	0.13	0.08	0.05	0.17	0.20	0.11	0.12	0.14	22
Chromium	µg/g	39	***94***	57	53	-	42	46	31	32	28	30	28	40	35	87
Cobalt	µg/g	16.7	23.3	18.0	20.9	-	14.5	16.8	14.5	8.2	14.9	11.9	13.5	13.4	12.4	300
Copper	µg/g	73.8	***211***	47.9	64.7	-	41.7	49.0	15.7	15.0	26.9	17.7	36.5	55.7	28.0	91
Iron	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Lead	µg/g	58.1	***1,290***	7.4	7.3	-	4.6	6.0	5.0	4.0	9.6	18.3	7.7	10.5	15.4	600
Lithium	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Manganese	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Mercury	µg/g	0.05	0.04	0.05	0.05	-	0.06	0.05	0.02	0.02	0.04	0.03	0.03	0.03	0.04	50
Molybdenum	µg/g	4.2	4.2	0.4	0.4	-	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.5	0.4	40
Nickel	µg/g	35.9	38.5	61.1	54.2	-	41.9	48.8	22.3	20.4	21.9	23.9	25.8	33.7	29.0	89
Selenium	µg/g	0.4	0.8	0.3	0.3	-	0.1	0.3	0.4	0.2	0.3	0.4	0.4	0.5	0.5	2.9
Silver	µg/g	< 0.5	0.6	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	40
Strontium	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Thallium	µg/g	< 0.1	< 0.1	0.1	< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1
Tin	µg/g	90.5	***373***	0.8	1.1	-	0.4	0.6	0.4	0.3	0.6	0.5	0.7	1.3	0.7	300
Tungsten	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Uranium	µg/g	0.5	0.3	0.4	0.4	-	0.4	0.3	0.4	0.5	0.5	0.5	0.3	0.6	0.5	300
Vanadium	µg/g	72	53	89	107	-	74	81	62	62	55	55	72	89	70	130
Zinc	µg/g	***1,150***	***8,610***	97	146	61	65	78	42	34	61	70	48	***1,680***	76	410

Associated ALS files: L1114782, L1118609.
Associated AGAT file(s): 17V280494, 18V312173.
Associated Bureau Veritas Laboratories file(s): C071430.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

BOLD Concentration greater than CCME CEQG Residential/Parkland (RL/PL) Guideline

[a] Pathways Included: Eco Soil Contact, Management Limit, Nutrient and energy-cycling check, Offsite Migration, Protection of Groundwater for Marine Aquatic Life, Direct Contact (particulate inhalation), Soil Dermal Contact, Soil Ingestion, Historical Guideline, Soil General.

TABLE 5: Summary of Analytical Results for Soil - Total Metals

Sample Location		RP14-TP17-06	RP14-TP17-07	RP14-TP18-08		RP14-TP18-09						RP14-TP18-10				RP14-TP18-11				Federal Guideline
Sample ID		RP14-TP17-06-01	RP14-TP17-07-02	RP14-TP18-08-01	RP14-TP18-08-02	RP14-TP18-09-01	RP14-TP18-09-02	QA/QC	RP14-TP18-09-03	RP14-TP18-09-04	QA/QC	RP14-TP18-10-01	RP14-TP18-10-05	RP14-TP18-10-06	QA/QC	RP14-TP18-11-02	RP14-TP18-11-03	QA/QC	RP14-TP18-11-06	CCME CEQG
Sample Date (yyyy mm dd)		2017 10 27	2017 10 27	2018 02 14	2018 02 14	2018 02 14	Duplicate	RPD %	2018 02 14	Duplicate	RPD %	2018 02 14	2018 02 14	Duplicate	RPD %	2018 02 14	Duplicate	RPD %	2018 02 14	Industrial
Depth Interval (m)		0.0 - 0.3	0.9 - 1.2	0.0 - 0.2	0.2 - 0.5	0.0 - 0.2	0.0 - 0.2		0.2 - 0.4	0.2 - 0.4		0.0 - 0.2	1.4 - 1.5	1.4 - 1.5		0.2 - 0.5	0.2 - 0.5		1.4 - 1.5	(IL)[a]
Parameter	**Units**	**Analytical Results**																		
Physical Parameters																				
pH	pH	***5.90***	6.62	***5.61***	6.77	***5.25***	***5.24***	0	***5.75***	***5.79***	1	6.05	***5.37***	***5.48***	2	***5.51***	***5.56***	1	6.91	6.0 - 8.0
Total Metals																				
Aluminum	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Antimony	µg/g	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40
Arsenic	µg/g	4.3	6.0	3.2	5.8	2.7	2.7	0	4.9	5.0	2	6.0	2.4	3.1	25	5.1	4.8	6	5.8	12
Barium	µg/g	85.0	89.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,000
Beryllium	µg/g	0.5	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Boron	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Cadmium	µg/g	0.18	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
Chromium	µg/g	31	43	33	57	30	30	0	39	45	14	74	29	34	16	37	35	6	45	87
Cobalt	µg/g	16.0	10.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300
Copper	µg/g	72.9	40.0	30.2	50.3	28.2	29.4	4	18.5	27.6	39	***258***	21.6	47.8	76	17.5	19.4	10	40.6	91
Iron	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Lead	µg/g	8.0	5.2	8.3	6.5	18.2	18.0	1	6.1	6.1	0	368	34.3	24.7	33	4.3	4.3	0	4.6	600
Lithium	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Manganese	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Mercury	µg/g	0.08	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50
Molybdenum	µg/g	0.7	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40
Nickel	µg/g	31.1	29.5	28.7	52.1	23.9	24.2	1	27.6	33.2	18	35.3	24.9	30.3	20	24.9	24.0	4	35.0	89
Selenium	µg/g	1.0	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.9
Silver	µg/g	< 0.5	< 0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40
Strontium	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Thallium	µg/g	< 0.1	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Tin	µg/g	0.6	0.4	0.5	0.6	0.7	0.7	*	0.4	0.4	*	54.7	1.3	1.6	21	0.5	0.5	*	0.5	300
Tungsten	µg/g	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
Uranium	µg/g	0.5	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300
Vanadium	µg/g	127	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130
Zinc	µg/g	77	44	58	75	58	57	2	49	53	8	***1,420***	82	216	90	41	39	5	58	410

Associated ALS files: L1114782, L1118609.
Associated AGAT file(s): 17V280494, 18V312173.
Associated Bureau Veritas Laboratories file(s): C071430.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
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n/a Denotes no applicable standard/guideline.
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* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

BOLD Concentration greater than CCME CEQG Residential/Parkland (RL/PL) Guideline

[a] Pathways Included: Eco Soil Contact, Management Limit, Nutrient and energy-cycling check, Offsite Migration, Protection of Groundwater for Marine Aquatic Life, Direct Contact (particulate inhalation), Soil Dermal Contact, Soil Ingestion, Historical Guideline, Soil General.

TABLE 5: Summary of Analytical Results for Soil - Total Metals

Sample Location		RP14-TP18-12	RP14-TP18-13	RP14-SS20-07	Federal Guideline
Sample ID		RP14-TP18-12-02	RP14-TP18-13-02	RP14-SS20-07	CCME CEQG
Sample Date (yyyy mm dd)		2018 02 14	2018 02 14	2020 09 30	Industrial
Depth Interval (m)		0.2 - 0.4	0.3 - 0.5	0.0 - 0.2	(IL)[a]
Parameter	**Units**	**Analytical Results**			
Physical Parameters					
pH	pH	6.78	***5.88***	***5.90***	6.0 - 8.0
Total Metals					
Aluminum	µg/g	-	-	15,800	n/a
Antimony	µg/g	-	-	0.29	40
Arsenic	µg/g	4.1	4.0	4.84	12
Barium	µg/g	-	-	81.9	2,000
Beryllium	µg/g	-	-	0.30	8
Boron	µg/g	-	-	2.7	n/a
Cadmium	µg/g	-	-	0.128	22
Chromium	µg/g	42	34	30.2	87
Cobalt	µg/g	-	-	11.2	300
Copper	µg/g	35.9	38.5	30.6	91
Iron	µg/g	-	-	25,800	n/a
Lead	µg/g	4.6	4.7	8.71	600
Lithium	µg/g	-	-	11.1	n/a
Manganese	µg/g	-	-	500	n/a
Mercury	µg/g	-	-	0.064	50
Molybdenum	µg/g	-	-	0.32	40
Nickel	µg/g	33.2	27.3	25.9	89
Selenium	µg/g	-	-	< 0.50	2.9
Silver	µg/g	-	-	0.054	40
Strontium	µg/g	-	-	33.6	n/a
Thallium	µg/g	-	-	0.054	1
Tin	µg/g	0.5	0.4	1.07	300
Tungsten	µg/g	-	-	< 0.50	n/a
Uranium	µg/g	-	-	0.325	300
Vanadium	µg/g	-	-	59.5	130
Zinc	µg/g	55	42	52.9	410

Associated ALS files: L1114782, L1118609.
Associated AGAT file(s): 17V280494, 18V312173.
Associated Bureau Veritas Laboratories file(s): C071430.
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- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

BOLD Concentration greater than CCME CEQG Residential/Parkland (RL/PL) Guideline

[a] Pathways Included: Eco Soil Contact, Management Limit, Nutrient and energy-cycling check, Offsite Migration, Protection of Groundwater for Marine Aquatic Life, Direct Contact (particulate inhalation), Soil Dermal Contact, Soil Ingestion, Historical Guideline, Soil General.

TABLE 6: Summary of Analytical Results for Soil - Volatile Organic Compounds

Sample Location		RP14-TP18-10	RP14-TP18-13	Federal Guideline
Sample ID		RP14-TP18-10-05	RP14-TP18-13-02	CCME CEQG
Sample Date (yyyy mm dd)		2018 02 14	2018 02 14	Industrial
Depth Interval (m)		1.4 - 1.5	0.3 - 0.5	(IL)[c]
Field Screen (ppm)[a]		0	0	
Parameter	**Units**	**Analytical Results**		
Volatile Organic Compounds				
Acetone	µg/g	< 1	< 0.5	n/a
Bromodichloromethane	µg/g	< 0.1	< 0.05	n/a
Bromoform	µg/g	< 0.1	< 0.05	n/a
Bromomethane	µg/g	< 0.1	< 0.05	n/a
Carbon tetrachloride	µg/g	< 0.04	< 0.02	50
Chlorobenzene	µg/g	< 0.1	< 0.05	10
Chloroethane	µg/g	< 0.1	< 0.05	n/a
Chloroform	µg/g	< 0.1	< 0.05	50
Chloromethane	µg/g	< 0.1	< 0.05	n/a
Dibromochloromethane	µg/g	< 0.1	< 0.05	n/a
1,2-Dibromoethane	µg/g	< 0.1	< 0.05	n/a
1,2-Dichlorobenzene	µg/g	< 0.1	< 0.05	10
1,3-Dichlorobenzene	µg/g	< 0.1	< 0.05	10
1,4-Dichlorobenzene	µg/g	< 0.1	< 0.05	10
1,1-Dichloroethane	µg/g	< 0.1	< 0.05	50
1,2-Dichloroethane	µg/g	< 0.1	< 0.05	50
1,1-Dichloroethylene	µg/g	< 0.1	< 0.05	50
cis-1,2-Dichloroethylene	µg/g	< 0.1	< 0.05	50
trans-1,2-Dichloroethylene	µg/g	< 0.1	< 0.05	50
Dichloromethane	µg/g	< 0.1	< 0.05	50
1,2-Dichloropropane	µg/g	< 0.1	< 0.05	50
cis-1,3-Dichloropropene	µg/g	< 0.1	< 0.05	n/a
trans-1,3-Dichloropropene	µg/g	< 0.1	< 0.05	n/a
Methyl ethyl ketone	µg/g	< 1	< 0.5	n/a
Methyl isobutyl ketone	µg/g	< 1	< 0.5	n/a
1,1,1,2-Tetrachloroethane	µg/g	< 0.1	< 0.05	n/a
1,1,2,2-Tetrachloroethane	µg/g	< 0.1	< 0.05	50
Tetrachloroethylene	µg/g	< 0.1	< 0.05	0.6
1,2,4-Trichlorobenzene	µg/g	< 0.1	< 0.05	10
1,1,1-Trichloroethane	µg/g	< 0.1	< 0.05	50
1,1,2-Trichloroethane	µg/g	< 0.1	< 0.05	50
Trichloroethylene	µg/g	< 0.02	< 0.01	50
Trichlorofluoromethane	µg/g	< 0.1	< 0.05	n/a
Vinyl chloride	µg/g	< 0.1	< 0.05	n/a

Associated AGAT file(s): 18V312173.
All terms defined within the body of SNC-Lavalin's report.
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- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

BOLD Concentration greater than CCME CEQG Industrial (IL) Guideline

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] Pathways Included: Eco Soil Contact, Management Limit, Nutrient and energy-cycling check, Offsite Migration, Protection of Groundwater for Marine Aquatic Life, Direct Contact (particulate inhalation), Soil Dermal Contact, Soil Ingestion, Historical Guideline, Soil General.

TABLE 7: Summary of Analytical Results for Soil - Explosive Parameters

Sample Location		RP14-BH17-02	RP14-BH17-06		RP14-TP17-02	Ecological Screening Levels	Human Health Screening Levels	BC Standard CSR Industrial Land Use (IL)
Sample ID		RP14-BH17-02-01	RP14-BH17-06-01	RP14-BH17-06-03	RP14-TP17-02-02			
Sample Date (yyyy mm dd)		2017 10 26	2017 10 27	2017 10 27	2017 10 27			
Depth Interval (m)		0.0 - 0.3	0.2 - 0.3	1.4 - 1.5	0.8 - 0.9			
Parameter	**Units**	**Analytical Results**						
Nitroaromatics and Nitroamines								
Dinitroaniline, 3,5-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	n/a	n/a
Dinitrobenzene, 1,3-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	0.655	100	25
Dinitrotoluene, 2,4-	µg/g	< 0.01	< 0.01	< 0.01	< 0.01	1.28	100	100
Dinitrotoluene, 2,6-	µg/g	< 0.01	< 0.01	< 0.01	< 0.01	0.0328	20	20
Dinitrotoluene, 2-Amino-4,6-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	450	450
Dinitrotoluene, 4-Amino-2,6-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	450	450
Hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	300	300
Nitrobenzene	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	1.31	450	450
Nitroglycerin	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	25	25
Nitrotoluene, 2-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	150	150
Nitrotoluene, 3-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	25	25
Nitrotoluene, 4-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	950	950
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine [HMX]	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	10,000	10,000
Pentaerythritol Tetranitrate [PETN]	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	n/a	450
Tetryl	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	100	450
Trinitrobenzene, 1,3,5-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	0.376	7,000	7,000
Trinitrotoluene, 2,4,6-	µg/g	< 0.02	< 0.02	< 0.02	< 0.02	n/a	n/a	100

Associated AGAT file(s): 17V280494.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

RPD Denotes relative percent difference.

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

BOLD	Concentration greater than the Ecological Screening Level.
SHADED	Concentration greater than the Human Health Screening Level.
OUTLINE	Concentration greater than CSR Industrial Land Use (IL) standard

TABLE 8: Summary of Analytical Results for Soil - Leachable Metals

Sample Location		SS12-2	RP14-BH17-06	Hazardous Waste Leachate Quality (HWLQ)
Sample ID		RP14-SS12-2-120224	RP14-BH17-06-03	
Sample Date (yyyy mm dd)		2012 02 24	2017 10 27	
Parameter	**Units**	**Analytical Results**		
Extractable Metals				
Antimony	µg/L	< 1,000	< 10	n/a
Arsenic	µg/L	< 1,000	< 20	2,500
Barium	µg/L	< 2,500	2,100	100,000
Beryllium	µg/L	< 25	< 20	n/a
Boron	µg/L	< 500	< 500	500,000
Cadmium	µg/L	< 50	140	500
Calcium	µg/L	29,600	-	n/a
Chromium	µg/L	< 250	60	5,000
Cobalt	µg/L	< 50	160	n/a
Copper	µg/L	< 50	650	100,000
Iron	µg/L	4,520	43,000	n/a
Lead	µg/L	980	***8,930***	5,000
Magnesium	µg/L	4,060	-	n/a
Mercury	µg/L	< 1	< 10	100
Nickel	µg/L	< 250	220	n/a
Selenium	µg/L	< 1,000	< 50	1,000
Silver	µg/L	< 250	< 10	5,000
Thallium	µg/L	< 1,000	< 10	n/a
Uranium	µg/L	-	< 10	10,000
Vanadium	µg/L	< 150	< 50	n/a
Zinc	µg/L	1,440	28,400	500,000
Zirconium	µg/L	-	< 10	n/a

Associated ALS files: L1118609.
Associated AGAT file(s): 17V280494.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard.

BOLD Concentration greater than Hazardous Waste Leachate Quality (HWLQ) standard.

Annex C. Physical Data

- Borehole and Test Pit Soil Logs
- Groundwater Monitoring Data

MONITORING REPORT

SNC·LAVALIN

Project No.: 650777
Date: 2020-08-17
Observer: SK
Weather: 15°C Clear
Time: 11:30
Approved by: BH

Public Services and Procurement Canada
Rocky Point - RP14

Monitoring Well No.	Reference Elevation[1] (m)	Depth to NAPL[2] (m)	Apparent NAPL Thickness[3] (mm)	Depth to Water (m)	Potentiometric Elevation[3] (m)	Depth to Bottom (m)	Calculated Vapour Conc.[4] (ppm)	Time	Comments
RP14-MW17-02	4.259	-	0	3.448	0.81	3.660	0	11:48	
RP14-MW17-04	8.236	-	0	4.712	3.52	5.400	0	11:59	*
RP14-MW17-05	8.130	-	0	4.931	3.20	4.960	0	11:53	
RP14-MW17-06	7.492	-	0	4.611	2.88	4.640	0	11:55	
RP14-MW17-07	9.760	-	0	3.463	6.30	4.560	0	11:58	*

NOTES: * Waterra in well during measurement.

[1] Reference Elevation is a mark on the rim of the monitoring well standpipe surveyed with respect to Geodetic Datum.

[2] Non-Aqueous Phase Liquid

[3] NAPL specific gravity assumed to be 0.8

[4] 1% LEL is approximately equivalent to 110 ppm.

MONITORING REPORT

SNC·LAVALIN

Project No.: 648721
Date: 2017-10-30
Observer: CP
Weather: 13°C Clear
Time: 11:00:00
Approved by:

Public Services and Procurement Canada
Rocky Point - RP14

Monitoring Well No.	Reference Elevation[1] (m)	Depth to NAPL[2] (m)	Apparent NAPL Thickness[3] (mm)	Depth to Water (m)	Potentiometric Elevation[3] (m)	Depth to Bottom (m)	Calculated Vapour Conc.[4] (ppm)
RP14-MW17-02	4.259	-	0	3.633	0.63	3.66	0
RP14-MW17-04	8.236	-	0	4.319	3.92	5.40	0
RP14-MW17-05	8.130	-	-	-	-	4.96	0
RP14-MW17-06	7.492	-	-	-	-	4.63	0
RP14-MW17-07	9.760	-	0	3.225	6.54	4.64	0

[1] Reference Elevation is a mark on the rim of the monitoring well standpipe surveyed with respect to Geodetic Datum.

[2] Non-Aqueous Phase Liquid

[3] NAPL specific gravity assumed to be 0.8

[4] 1% LEL is approximately equivalent to 110 ppm.

Annex D. Environmental Protection Reports

Note: Reports can be found in Package 2.

Annex E. Health and Safety

- Fire Orders and Regulations for Contractors
- CFAD Rocky Point Smoking Areas
- Base Fire Safety Policy
- CFB Esquimalt – Safety & Environment for Contractors

CFB Esquimalt Fire Rescue
Fire Prevention Division

Project: _____ **Location: CFB Esquimalt** _____

Fire Orders and Regulations for Contractors

All personnel are to be thoroughly familiar with the contents of this order and in addition are to be conversant with relevant regulations pertaining to:

Fire Safety Plans

- Prior to commencement of construction or demolition, the Contractor shall prepare for the site a Fire Safety Plan conforming to the *National Fire Code of Canada Section 2.8 Emergency Planning*.

- Prior to commencement of construction or demolition, the Contractor and their personnel shall be familiar with the *National Building Code of Canada Section 8.2 Protection of the Public and Fire Safety* or *British Columbia Building Codes section* 8.2.

Reporting Fires

- Report immediately all fire incidents to the Fire Department as follows:
  - Activate nearest fire alarm and
  - Telephone 911
  - Telephone the Fire Department 363-1990/1991

- When reporting a fire by telephone, give location of fire, name or number of building and be prepared to verify the location.
  - When reporting by cellular phone, inform the operator your location as CFB Esquimalt**,** (Bldg #) Colwood, Wilfert Road. You may initially receive a 911 operator from another jurisdiction depending on your cellular phone.

Fire Precautions

- Fire safety will be maintained in accordance with Canadian Forces Base (CFB) Esquimalt Fire Orders.

- Fire watchers provided with sufficient fire equipment (Company Owned) to control or extinguish fire shall be provided:
  - Whenever work is being carried out in dangerous or hazardous areas involving the use of heat.
  - For the duration of cutting, welding, and roofing operations and for a period of 1 HR thereafter…2 HR for roofing. Before leaving, he/she shall inspect the site to ensure that all is in order.

- On a scale established in conjunction with the engineer prior to commencing work.

- Hot works permits are required from the Fire Prevention Division, **363-1911 or 250-213-8250** in all cases involving welding, cutting, grinding, roofing or the use of blowtorches, salamanders, etc. Regulations in the Hot Works permit will be strictly adhered to.

- The contractor shall supply fire extinguishers, as scaled by the Chief Fire Inspector, necessary to protect the work in progress and the contractor's physical plant on site.

Interior and Exterior Fire Protection Systems and Alarm Systems

- Fire hydrants, sprinklers systems, and fire protection and alarm systems will not be:
  - Obstructed;
  - Tampered with, shut-off; or
  - Left inactive at the end of a working day or shift without authorization from the Chief Fire Inspector.
  - The Chief Fire Inspector must be notified before disconnecting the power to buildings with fire alarm systems.

- Fire hydrants, standpipes and hose systems will not be used for other than firefighting purposes unless authorized by the Chief Fire Inspector **363-1911**.

Blocking of Roadways or Access/Egress

- Blocking of Roadways: in all area the Chief Fire Inspector is to be advised prior to the erection of barricades or the digging of trenches which might impede fire apparatus. The Contractor shall provide an emergency access road as required and as directed by the Chief Fire Inspector.

- Blocking of Access/Egress: The Chief Fire Inspector shall be advised of any work that would restrict access/egress or block a door to an area of the building. The Contractor shall provide an emergency access route as directed by the Chief Fire Inspector.

Flammable Liquids

- Flammable liquids such as gasoline, kerosene, naphtha, etc., may be kept for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing the Underwriters Laboratory or Factory Mutual Seal of Approval.

- Transfer of flammable liquids is prohibited within buildings. In all cases where the transfer of such liquids is necessary, care is to be taken to provide adequate bonding between containers and ground.

- The transfer of flammable liquids shall not be carried out in the vicinity of open flame or any type of heat producing devices.

- Storage of quantities of flammable liquids exceeding 45 litres for work purposes requires the permission of the Chief Fire Inspector. Flammable liquids having a flash point below 38°C (100°F) such as gasoline or naphtha, etc., shall not be used in solvents or cleaning agents.

- Disposal of flammable liquids shall be in a safe approved manner.

Smoking Precautions

- Although smoking is not permitted in hazardous areas, care must still be exercised in the use of smoking materials in non-restricted areas. Smoking is not permitted in Department of National Defence buildings.

Storage and Removal of Rubbish and Waste Materials

- Accumulations of rubbish and waste materials are to be kept to a minimum, and removed from buildings at the end of the workday or shift.

- Flammable waste materials shall not be stored in the work area without the consent of the Chief Fire Inspector.

- The burning of rubbish is prohibited

Quality Control
Automatic Fire Protection and Detection Systems (AFP and DS)

- The Chief Fire Inspector, Fire Prevention Division, CFB Esquimalt Fire Rescue, shall be informed in advance of acceptance inspections or tests of new AFP and DS.

- A copy of the applicable manufacturer's operating maintenance, parts list manual, one set of keys for new alarm panels in addition to any other manuals, and keys called for in this specification, shall be provided to the Chief Fire Inspector at the time of acceptance.

- The Contractor shall arrange a briefing from a manufacturer's representative for the Chief Fire Inspector prior to or at the time of acceptance of new AFP and DS.

- When existing AFP and DS are modified, required repair, or are being expanded, the Chief Fire Inspector shall be notified prior to commencement of work and kept informed of progress. On completion, the Chief Fire Inspector shall be informed to enable Fire Department staff to test the system.

I acknowledge I am aware of these regulations requiring compliance with CFB Esquimalt Fire Safety Orders and Directives in connection with the work to be performed.

Inspector: _____ Date: _____

Contractor: Date:
Phone # _____ _____

CFAD Rocky Point Smoking Areas


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BSO 7665-0
Base Fire Safety Policy

1. Identification

Date of Issue	27-04-2018
Date of Modification	27-04-2018
Application	This order and directive applies to those members of the Canadian Armed Forces (CAF) and employees of the Department of National Defence (DND), NPF employees, contractors and all individuals that reside in Canadian Forces Base Esquimalt. This is inclusive of Lodger units and all properties for which the Base Commander is responsible.
Supersession	This Base Standing Order (BSO) supersedes BSO 2-314 through 322 inclusive.
Approval Authority	This BSO is issued pursuant to the authority of the Commanding Officer Canadian Forces Base Esquimalt.
Enquiries	Commanding Officer Port Operations and Emergency Services

2. Definitions

Building Custodian	The person in charge (CF or DND) of real property for the department. The Commanding Officer or the senior officer responsible for the building.
Emergency Operations	Activities of fire protection services which relate to, but are not limited to: infrastructure, aircraft, shipboard, wild land, rescue, hazardous materials, CBRN and emergency medical response.
Fire Prevention	Fire Protection Services and enforcement dealing with preventing the outbreak of fire through identification and recommendations to eliminate fire hazards through activities such as inspection, code enforcement, education, training, and investigation programs.
Fire Warden	The official tasked with ensuring that workplace fire hazards are identified, reported and corrected.

3. Direction/Policy

Context **3.1**	The Fire Protection Program (FPP) rests on the pillars of prevention and intervention. Fire protection is a continuous risk management process which focuses on identifying and reducing risks to federal real property and to the public; minimizing and containing the costs and consequences of harmful or damaging incidents.
Policy **3.2**	All personnel employed at CFB Esquimalt are required to comply with the requirements of this order. All fires must be reported to the Base Fire Department regardless of size or if extinguished. The Fire Department will investigate the circumstances and recommend appropriate action as required. The non-emergency number is 363-1990 or 363-1991.

4. Requirements

Fire protection for CFB Esquimalt and its integral lodger units is

Fire Protection Stations
4.1

provided by the DND (Civilian) Base Fire Department with a central fire station at Naden 141, district fire stations at CFMETR and the Canadian Forces Ammunition Depot, Rocky Point.

Building Fire Safety Plans
4.2

Occupied buildings are required to have posted Fire Safety Plans (FSP) and Fire Emergency Evacuation Plans (FEEP) in accordance with the Canadian Occupational Health and Safety Regulations.

Fire Reporting
4.3

For any emergency call 911. Using an office/building phone (pre-fix 363), will come directly to CFB Esquimalt Fire Dispatch Centre. Cell phones will be connected to Victoria Dispatch Centre. Explain to Dispatch Centre you are at CFB Esquimalt and you will be transferred to the CFB Esquimalt Fire Dispatch Centre. If possible, meet the Fire Department on arrival.

Fire Precautions in Buildings – Building Custodian and Fire Warden
4.4

Building custodians are responsible for safeguarding each building and fixed installations from fire. They are responsible for appointing the fire emergency organization for their building and monthly fire warden reports (CF-1416), which are to be completed and provided to the fire prevention division. Those duties can be delegated to fire wardens.

Evacuation Procedures

4.5.

Upon Discovery of a Fire:

- Leave fire area immediately (only attempt to fight the fire with an extinguisher, if safe to do so)
- Close (do not lock) doors behind you. Close windows if possible
- Sound the fire alarm via manual station (if applicable) or "Fire-Fire-Fire!"
- Call the fire department – 911
- Leave building via nearest and safest exit towards the assembly area
- Do **not** use elevators!
- Upon Hearing Fire Alarm
- Leave building via nearest and safest exit towards the assembly area
- Close (do not lock) doors behind you. Close windows if possible
- Remain calm

Electrical Equipment and Appliances
4.6

All electrical equipment and appliances shall be listed by an organization recognized by the Standards Council of Canada.

Electrical installations or modifications to existing installations shall not be carried out by personnel other than authorized electricians.

Privately owned electrical appliances shall not be installed in DND Buildings. Real Property Operations electricians or fire protection personnel on inspection duties shall order unsafe electrical appliances removed.

The use of extension (flexible) cords shall not be used as a substitute for the fixed wiring of structures, permanently secured to any structural member, run through holes in walls, ceilings, floors,

doorways, windows or similar openings. Extension cords are to be unplugged at the end of each work day.

Personal portable electrical heaters are only permitted on an interim basis. While in use, they shall not be placed under furnishings or in a location where clothing, paper, or other combustible material may come in contact with them. They must be listed by an approved company from the Standards Council of Canada, have an automatic shut-off switch in the event of an accidental tip-over and unplugged at the end of each work day.

Permanent Decorations

4.7

Draperies, curtains and similar furnishings used in buildings shall meet the requirements for flame resistance as specified in the National Fire Code of Canada (NFCC). Furnishings, decorations and other objects shall not be placed so as to obstruct, conceal or obscure exits, access to or egress there from. Flame-proofing treatment of decorations shall follow the guidelines of the NFCC.

Temporary Decorations
4.8

Decorations which are readily combustible shall not be used on DND Property unless suitably flame proofed.

Decorations shall not be placed on electric fixtures or within 3 feet (1 meter) of electric lamps or heating appliances.

Decorations shall not impede any egress or access.

Decorations shall not obstruct any fire protection systems or their components.

Only artificial trees are to be used in any DND facility.

Hot Work

4.9

Whenever possible, hot work operations shall be carried out in a designated area such as a machine shop or similar safe location.

Ensure the hot work permit procedure for your building, ship or work space is followed. If unsure what your procedure is, give the Chief Fire Prevention Officer a call at 250-363-1911.

Portable Fire Extinguishers
4.10

Portable Fire Extinguishers shall be installed in buildings in accordance with CFS-12 D12-102 Scales of Issue, and NFPA Standard No. 10.

Extinguishers shall be conspicuously located and distributed so as to be readily accessible. They shall be hung on hangers or set on brackets or shelves so that the top of the extinguisher is not more than five feet above the floor. Extinguishers may also be placed in special cabinets. Extinguishers are not to be moved or relocated without authorization of the CFB Esquimalt Base Fire Prevention Division. Tampering with firefighting equipment and fire protection systems is a chargeable offence under the Criminal Code section 430 (mischief).

The Building Custodian, Fire Warden or vehicle operator shall inspect all portable extinguishers under their control at intervals not exceeding one month to ensure that the extinguishers:

- are unobstructed and accessible
- are in clean and serviceable condition
- have not been subject to physical damage

Défense nationale | National Defence

CFB ESQUIMALT

Safety & Environment for Contractors

Produced: February 2015

Canada

EMERGENCY SERVICES - 911	
Formation Level Contacts	
Base Construction Engineering Help Desk	250-363-2009
Base Logistics Hazardous Material Facility	250-363-2654
Harbour Control Office	250-363-2160
Queen's Harbour Master (duty cell)	250-889-0444
Formation Safety Officer Ionizing Radiation Safety Laser System Safety Radio Frequency Safety (RadHaz)	250-363-7500 250-363-7500 250-363-7500 250-363-7500
Formation Environment Officer	250-363-5063
Military Police Dispatch (non-emergency)	250-363-4032
External Contacts	
WorkSafe BC	1-888-WORKERS 1-888-967-5377
Provincial Emergency Program	1-800-663-3456
EMERGENCY SERVICES - 911	

“Notwithstanding that contractual work is conducted on DND land, the work of private contractors and their employees is normally subject to the laws of the Province or Territory in which the work is being conducted. However, this does not relieve the Department of all responsibility and special provisions must be incorporated to safeguard our employees and protect DND’s and the CAF’s legal liability”.
DND General Safety Program Vol 1, Chap 2.

This infoflip® is designed to assist contractors and their employees in meeting their Safety and Environmental responsibilities as well as providing some guidance when working on DND property. It also contains information on when, how and who to contact for questions or guidance. It covers many facets of working with DND and can be used as a guide for commencement of work and a tool to contact the appropriate personnel for questions and advice.

General Safety Program

The Department of National Defence (DND) has a General Safety Program in place to ensure the safety and well-being of its employees and members. While a contractor is not considered an employee of DND, there are many aspects of the General Safety Program that will apply to non-employees, including contractors.

The General Safety program aims to:

- ❒ Minimize personal suffering and financial losses;
- ❒ Add to the efficiency of DND and the operational effectiveness of the Canadian Armed Forces (CAF); and
- ❒ Meet legislative requirements; and contributes to the morale and well-being of all DND employees and CAF members.

Formation/Ship Safety and Environment Management Systems

The Formation and Ship Class Safety and Environment Management Systems provide guidance to DND personnel on implementation of the Maritime Forces Pacific Safety and Environment policy that is specific to the Formation or Ship Class.

The Safety and Environment Management System (SEMS) manual is used to satisfy the requirements of DND, Command and Formation Safety and Environmental policies and directions. It also provides the guidance to ensure employees and workers are compliant with Formation, Base, Provincial and National policy and legislation for the protection and safety of all workers on DND property.

In most cases, contractors should request a full copy of any SEMS directive that relates to the type of work or hazards they may encounter. This infoflip® merely highlights the key points.

Injury Prevention

The goal of any safety program is the prevention of accidents and injuries. This infoflip® contains information on several of the programs covered by the Formation or Ship Safety and Environment Management Systems.

Many of these programs outline the use of specific **Personal Protective Equipment**. It is expected that contractors will comply with applicable legislation as well as DND standards where required.

Accessing DND Property

Most defence establishments have set procedures for accessing DND property. CFB Esquimalt is no exception. The security levels may change from time to time in response to potential threats, or as part of a training activity. Contractor ID cards may be required for access to most DND properties, and potentially building sites within it. Ensure you carry your Contractor ID with you at all times and be prepared to show it. **All personnel accessing DND property are subject to search.**

Parking

Vehicles require an access pass to enter most DND property. Be aware that there is little open parking on the base and you will be subject to ticketing/towing if you park improperly. Look for parking spots designated for contractors.

Secure Zones

Certain areas may be designated as Operations, Security, or High Security Zones and there are additional security requirements in these areas. For example, cell phones are not permitted in these areas and must be powered off, or secured elsewhere. You may also require a visitors pass or escort to access and move around these areas.

All contractor personnel should be aware of security requirements in the areas that they will be working in.

Designated or Controlled Materials

It is possible that your work as a contractor may require you to access documents or materials that are designated or controlled. This means there are additional requirements to protect the security of these documents or materials. For example, documents containing personal information on an individual may have a security designation of Protected A or Protected B. A user manual or set of schematics may be controlled if they are for systems that could affect national security if the details fell into the wrong hands. As well, ship equipment may be controlled and have special disposal requirements.

Be sure you are clear about the designation of documents or materials you have access to, and know whether it's a controlled item or document. Ask for direction on the standards for access, security and disclosure of these items

WorkSafeBC Workplace Inspections

If you or your organization is subject to a Worksafe BC inspection or investigation on CFB Esquimalt property, ensure you contact Formation Safety at 250-363-7500 so appropriate DND coordination is provided.

Although the goal is to eliminate accidents, there is still a chance one could happen, in spite of best efforts. When an accident happens, it's important to report it in a timely manner once the immediate requirement for first aid or emergency responders has been initiated.

First Aid

While contractors are responsible for providing their own first aid services for their workers, if immediate medical attention is required, there are first aid services available in many areas of CFB Esquimalt. It's advisable to enquire about the availability of first aid services in your work area so that you are familiar with its location and how to access it.

If emergency services are required, call **911**. **Note: many areas of the base have limited cell-phone coverage.** Ensure you indicate CFB Esquimalt when talking to the 911 operator. If calling from a DND landline, you will also dial **911**.

Automatic external defibrillator's (AEDs) are placed throughout CFB Esquimalt and in most cases, there is external signage on the buildings where they are located.

WorkSafeBC

All workers in BC are covered under the *Workers Compensation Act* and all accidents resulting in an injury must be reported to WorkSafeBC within three working days.

Refer to **WorkSafeBC.com** for detailed instructions on reporting an injury or death.

Hazardous Occurrence Reporting

In addition to the requirement to report an accident resulting in an injury to WorkSafe BC, accidents that result in a DND employee or military member being injured have additional reporting requirements under the General Safety Program. This also applies to accidents resulting in damage to DND property.

In the event of a severe injury, notify the Formation Safety Officer immediately at 250-363-7500.

While it isn't a contractor's responsibility to initiate the DND Hazardous Occurrence Reporting process, it's possible or likely that witness statements will be required, or the Hazardous Occurrence Investigator may contact you for more information. It is expected that contractors will cooperate to the best of their ability in all investigations.

Report all known or suspected injuries to the appropriate authorities.

Fall Arrest Systems

Canada Occupational Health and Safety Regulations state that fall protection equipment (FPE) must be worn by all workers working 2.4 meters or more above a permanent safe level. The harnesses shall be CSA approved and must be inspected prior to each use.

Ladder Safety

In some instances, portable ladders are the more practical way to carry out the work required. Used correctly, they can be a very handy tool; used incorrectly, they can be a source of injury. The following are some useful points for the correct use of a portable ladder.

1. The base of the ladder should be placed no less than one-quarter and no more than one-third of the length of the ladder from a point directly below the top of the ladder.
2. Where possible, the ladder should be secured in place.
3. A portable ladder that provides access from one level to another shall extend at least three rungs above the higher level.
4. No person shall work from any of the three top rungs of any single or extension portable ladder or from the two top rungs of any portable step ladder.
5. Metal or wire-bound portable ladders shall not be used where there is potential to come into contact with a live electrical circuit or equipment.

Mobile Elevated Work Structures

Caution is to be used when working from a mobile elevated work structure and in particular, when moving or repositioning the structure. There are many overhead obstructions and certain areas, such as dock yard, are very busy and often cluttered as supplies are moved on and off ships. FPE is required for all personnel.

Ship Safety

The same safety standards apply aboard any Royal Canadian Navy (RCN) vessel. If work must be done at height, the appropriate fall arrest system must be used. Ship's personnel can provide detailed guidance and direction specific to their ship.

Warning Signs

If any work at height poses a secondary danger to other personnel, warning signs shall be placed in a conspicuous place, and at a sufficient distance from the job.

All work done in a confined space is considered risky due to the many potential hazards that may be present. Under no circumstances should a contractor enter a confined space unless they have been authorized to do so and have been briefed on procedures.

Contractors are required to follow the requirements of the applicable regulatory body. (Canada Labour Code, Province).

The Entry Supervisor completes their assessment of the space and level of risk. This will include atmospheric testing to determine if a hazardous condition exists. The Entry Supervisor initiates a Confined Space Entry Permit and briefs the Entry Team prior to the commencement of any work.

The contractor's Emergency Response Team (ERT) is notified prior to and after the commencement of work. If the ERT is not available, the work may be postponed. If the ERT becomes unavailable while the confined space work is being done, the work must stop immediately and personnel must exit the confined space.

DND is not mandated to provide rescue teams for confined space entry, but will respond, if available. All confined space entries shall have a hazard assessment completed and a written safe to enter certificate completed by a qualified person.

Confined Space Entry Procedures

1. Ensure all energy sources have been isolated/locked out.
2. Ensure adequate ventilation is provided and the atmosphere tested.
3. Implement your company's confined space procedure.
4. Ensure entrant, rescue team and sentry are qualified.
5. Ensure hazard assessment completed.
6. Ensure entry plan completed.
7. Ensure rescue plan completed.
8. Ensure personnel are briefed on hazards and work to be conducted.
9. Ensure entry log is in place and used.
10. Ensure safe to enter certificate is completed and posted by qualified person.
11. Ensure rescue team and equipment are in place.

Report all known or suspected injuries to the appropriate authorities. Accident Reporting (3)

Radio Frequency (RF) radiation, also known as non-ionizing radiation, can pose a health hazard to personnel who are exposed to levels higher than Health Canada recommendations. These levels are individually known as the **Maximum Exposure Limit (MEL).**

Through measurement, the distances (MEL distances) one must remain away from any given radiating emitter have been determined. These distances are held by the ship or unit owning these RF emitters.

Contractor personnel will be briefed on the applicable MEL distances and emitter control procedures prior to accessing a site with RF emitters in it. This briefing will be given by the Officer of the Day on ships

Buildings with RF emitters will have a DND/CAF employee appointed to grant access to the roof and this person will provide the briefing on RF hazards resident there.

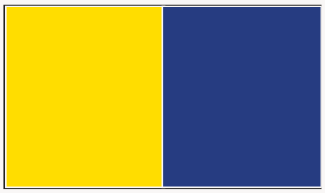
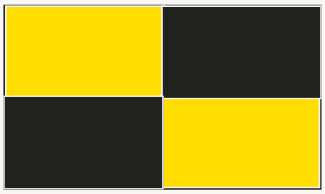
Sources of Radio Frequency (RF) Radiation

The more obvious source of RF radiation is from ship board equipment such as radar and communication antennas.

There are also RF emitters located on various buildings. These include D250, D199, D211, D100, D218, N92A, and N50. Proper roof access procedures, obtained from the contracting authority, must be described to personnel prior to commencing work on any roof.

Indicators for Radio Frequency (RF) Radiation Hazard

Ships will use a series of coloured flags to indicate the status of their RF transmitting capabilities.

FLAG ECHO Indicates that the vessel is rotating an antenna without radiating RF Energy.	
FLAG KILO Indicates that a person is working aloft and/or over the side.	
FLAG LIMA Indicates that the vessel is radiating RF Energy.	

Hazards of Electromagnetic Radiation

1. **Hazards of Electromagnetic Radiation to Fuel (HERF):** There is potential for **RF radiation** to cause spark ignition of volatile combustibles such as gasoline, fuels or solvents.
2. **Hazards of Electromagnetic Radiation to Ordnance (HERO): RF radiation** may cause ordnance or ammunition to inadvertently fire without notice or indication.
3. **Hazards of Electromagnetic Radiation to Personnel (HERP): RF radiation** can heat and burn body tissue and may occur through exposure to a nearby source, or through direct contact with an antenna wire, cable or metal railings that may be reradiating fields.

Suspected or Confirmed Exposure

Any personnel who suspect that they are being over exposed to radio frequency radiation should immediately move away from the source of radiation. **Any personnel who suspect or confirm they have been exposed to radio frequency radiation should seek immediate medical attention.** Medical personnel are to be advised that there may have been an RF over exposure.

Report all known or suspected injuries to the appropriate authorities. Accident Reporting (3)

Hot Work is defined as "any activity which has the potential of generating a source of ignition." This includes welding, burning, grinding, or the use of any spark-producing equipment.

Before any Hot Work can be carried out, a Hot Work Certificate must be issued. Contact the Base Fire Hall **250-363-1906** to receive a permit and a copy of **Fire Orders and Regulations for Contractors.**

Prior to the Hot Work Certificate being issued, a hazard assessment must occur, including the following:

- ❒ Remove all combustible or flammable materials
- ❒ Ensure fire cloth, smoke curtains and ventilation are in place
- ❒ Ensure all areas where a spark could land are protected
- ❒ If applicable, ensure the compartment(s) has been certified gas free
- ❒ Ensure electrical cables liable to be damaged have been covered with protective material

Once the Hot Work is to begin, the Fire Sentry(s) are to be briefed and will ensure the appropriate fire extinguisher(s) are on site.

Note: Gas free testing along with a new Hot Work Certificate must be conducted every 24 hours.

Completion of Hot Work

Once the Hot Work has been completed, the Fire Sentry(s) are required to stay on site for a minimum of 30 minutes. After inspecting the area, the Fire Sentry(s) will report to the customer or Fire Hall that the operation is complete.

Prohibited Hot Work

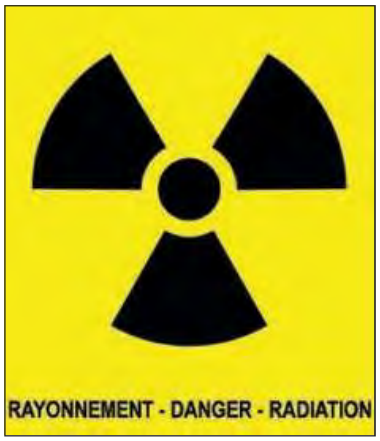
- ❒ In compartments containing unsealed flammable material
- ❒ On pipes containing any trace of fuel or lube oil
- ❒ Within two (2) meters of a magazine or fittings that enter the magazine
- ❒ On pipes containing any trace of sewage inside

In the event a fire is detected: Shout "FIRE, FIRE, FIRE" and exit the area in an orderly fashion. Notify the Base Fire Hall (911), no matter how small the fire.

Exposure to ionizing radiation can be harmful as it damages the internal structures of living cells. High doses can cause death over a short period of time, or other long term health issues from low doses over longer periods of time.

Sources of Ionizing Radiation

Potential sources of radiation can be specialized monitoring equipment, aircraft gauges, X-rays and even smoke detectors. The international symbol for ionizing radiation is the trefoil. In Canada, X-rays are identified by a different symbol.



Trefoil

X-Ray

Radiological Hazardous Occurrence (RHO) Procedures

- ❒ Hold your breath.
- ❒ **Attempt to breathe only once in fresh air!**
- ❒ Vacate the immediate area.
- ❒ Secure the area if possible.
- ❒ Call the Radiation Safety Officer.
- ❒ Remain nearby until released.

Report all known or suspected injuries to the appropriate authorities. Accident Reporting (3)

Suspected/Confirmed Contamination and/or Exposure

If there has been a suspected or confirmed over exposure, the person **MUST be sent to the hospital.** Ensure medical authorities are advised that the individual may have had a possible ionizing radiation over exposure and if applicable, that the source may be on the person's clothing.

As with any other injury or accident, the details must be reported to WorkSafe BC. It is the contractors responsibility to ensure this happens. **Accident Reporting (3).**

Containment and Clean-up

If DND/CAF personnel are not yet aware of the contamination, ensure they are notified immediately. Units holding radioactive materials will have a Unit Radiation Safety Officer who must be notified of the contamination.

Areas must be evacuated and cordoned off until the clean-up has been completed. Only qualified personnel are permitted to do the clean-up; contractors should not attempt to clean a contaminated area.

Industrial Radiography

Contractors must be licensed by the Canadian Nuclear Safety Commission (CNSC) for Nuclear Gauges (e.g. Troxler Gauges) and Gamma Radiography and they must be able to present these licenses upon demand when on DND/CAF property.

For X-ray Radiography, the contractor must have one person on staff who is a CGSB Level II radiographer (licensed by NRCan).

For Gamma Radiography, there must be one operator who is both CNSC - Certified Exposure Device Operator (CEDO) and NRCan - CGSB Level II certified.

XRF operators must be licensed by NRCan as at least a Level I XRF Operator.

All contractors must have an emergency plan that is accessible to the Base RadSO. Moreover, any contracted services intending to use ionizing radiation must inform the Base RadSO.

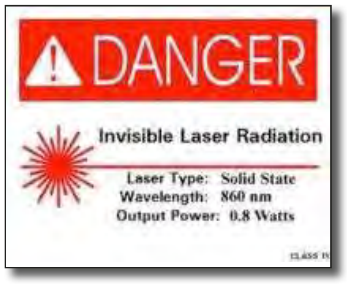
Report all known or suspected injuries to the appropriate authorities. Accident Reporting (3)

Exposure to high power laser light can be hazardous to eyes as well as skin. Lasers range from Class 1 to Class 4. Class 1 are not considered hazardous to skin, or eyes. Class 2 may be hazardous to the eyes but protection is normally afforded by the eye's natural aversion response to bright light. Class 3 lasers may be potentially harmful if under direct and specular viewing conditions. Class 4 lasers are capable of causing serious injury to both eye and skin, and could cause combustion of flammable materials.

Ships such as the Halifax Class contain a Class 4 laser system. Where a ship or unit has Class 3B or 4 laser systems, they will have a Unit Laser System Safety Officer (ULSSO) appointed who will ensure personnel are trained and briefed and that all laser safety policies, standards and procedures are adhered to. Contractor personnel should ensure they are familiar with these policies and procedures prior to commencement of work.

Area Control Where Laser Hazard Exists

Any area where a laser will be operated shall be well defined. In most situations, a laser warning sign such as the one shown here should be in place. All personnel must follow posted instructions and use appropriate Personal Protective Equipment (PPE) as required.



Optical Viewing Devices

Optical viewing devices such as binoculars, big eyes or telescopes shall not be carried or used in any controlled area without prior approval of the ULSSO. If laser operations are to be viewed with such devices, appropriate attenuating filters must be used in the optical viewing device.

Suspected or Confirmed Over Exposure

If there has been a suspected or confirmed over exposure involving laser radiation, the person **MUST be examined by a physician**. Ensure the medical authorities treating the person have been advised that there may have been a laser over exposure.

Report all known or suspected injuries to the appropriate authorities. Accident Reporting (3)

Spill Response and Reporting

All contractors who will have their own vehicles on DND property and/or will be using hazardous materials, must have response equipment, such as a spill kit, and personnel trained in their location and use. In the event of a spill, the contractor is responsible for immediately implementing spill response procedures. If a spill cannot be easily contained or cleaned up, the contractor must call the Base Fire Hall at **911**. Contractors must also report all spills to their contract authorities and the Formation Environment Officer at 250-363-5063, as soon as possible

Contractors are responsible for the cost of cleaning up a spill they generated.

Sick, Injured or Abandoned Wildlife

Do not touch or disturb wildlife on DND properties, including wildlife that appear dead or injured. If you encounter:

- ❒ dangerous animals, such as a bear or a cougar, report it to the Military Police at 250-363-4032 immediately; and
- ❒ sick, injured, abandoned or dead wildlife, report it to the Base CE Help Desk at 250-363-2009.

Waste Disposal

Contractors are responsible for removing and appropriately treating/ disposing of all wastes in accordance with contract documentation. This includes all liquid wastes generated during project activities. Disposal of any waste in DND waste bins is prohibited. Disposal of untreated liquid wastes to the environment and/or storm/ sanitary sewers is prohibited.

Archaeological Features

Contractor personnel should be aware of the mitigation measures prior to commencement of work and ensure they are being implemented throughout the duration of the project. Prior to commencing any land alteration activities, contractor personnel should receive an archaeological briefing which their contract authority will coordinate.

Contractors working on systems requiring lockout or tagout procedures will be expected to follow the existing policy as outlined in **Formation Safety and Environment Systems (FSEMS) Directive S14** The lockout / tagout procedures will be used in conjunction with other work safety standards (**Confined Space Entry (5), Burning and Welding (8)**) but not in lieu of their safety standards.

Approved Padlocks or Lockout Devices

Locks shall be sequentially numbered and will be identified as belonging to the contractor. The customer will have locks meeting the same standard and identified as belonging to them. The contractor must coordinate LOTO requirements with the applicable unit owning the equipment and keep a register of locks issued, including the date, person's name, contractor name, system worked on and the location of the lock or device.

Only one key shall be issued with a padlock and in the event of a lost key, the lock must be destroyed once it has been removed in accordance with procedures. Replacement keys will not be produced.

Zero Energy Checks must be completed before starting work to ensure the lockout is effective.

Removal of Locks

Normally the person who applied a lock is the only one who can remove it. In exceptional circumstances, the MSE and CSE Department Heads (or their delegates) may authorize the removal of the lock under the following circumstances:

- ❒ The machinery / equipment / system shall be verified safe to operate
- ❒ The owner identified on the tag shall be contacted for permission to remove his/her lock
- ❒ Details shall be entered in the Lockout Register

In the case of critical systems onboard the submarines, the owner of a lock will leave the key for his/her lock with the LOTO Coordinator if they leave the sub (ie, leave after working hours), and will draw the key prior to commencing work the following shift.

Contractor Responsibilities

"The unit Contract Officer/Coordinator is to ensure the contractor is aware of the Lockout/Tagout procedures detailed in this Directive. Contractors shall report immediately to the relevant department to be provided a Point of Contact and to be briefed on the procedure to be followed while working onboard."
FSEMS Directive SD14

13 Lockout / Tagout (LOTO)

Due to the risk of a significant emergency occurring such as an earthquake or tsunami, the base has stood up a **Mass Notification System** to give warning to all personnel. In the event that the Tsunami Warning System has detected a tsunami threat, an audible warning system will sound throughout the base. Immediately head for higher ground. Look for signs to indicate tsunami evacuation routes:

There is more than one tsunami evacuation site; be sure you are familiar with the one closest, and most accessible to your location. It's important to remember that personnel are expected to travel to the evacuation sites by foot except in cases when an individual is physically unable to walk. Roads will become congested very quickly otherwise.

Tsunami Hazard Zones

Areas most at risk for a tsunami are indicated by warning signs. These signs are marking what is referred to as the inundation zones, or the areas of lower elevation most likely to be affected by a tsunami.

Mass Notification System

The **Mass Notification System** is also intended to deliver an audible signal to indicate other emergency situations such as an active aggressor. The Mass Notification System will be tested on the first Wednesday of each month for approximately 1 minute commencing at 11:00 am.

Threat of Violence or Terrorism

In the event there is a threat of violence requiring lock-down procedures:

- ❒ Escape or hide out; call **911**.
- ❒ Secure self and location; lock doors, windows.
- ❒ Mitigate vulnerabilities; close blinds, turn off lights.
- ❒ Stay put; wait for authorities to release you.
- ❒ Take action as a last resort.

Situations that may trigger a requirement to call Emergency Services can include medical, fire or even a threat of violence. CFB Esquimalt Emergency Services works with municipal Emergency Services to support all locations occupied by DND. In the event of an emergency, call **911. If calling from a cell phone, inform the dispatcher that you are calling from Canadian Forces Base (CFB) Esquimalt.** Provincial Dispatchers will notify and dispatch the appropriate Emergency Services in your area. Emergency procedures must be discussed with the contracting authority prior to commencing work and be included in the contractor's safety plan.

Major Disasters

There are protocols in place to deal with large scale emergencies such as earthquakes. It's important in such a situation to follow the directions of DND/CAF personnel on muster points and protocols to follow. A full accounting of all personnel is to be completed after buildings have been evacuated, and this includes registering non-DND personnel such as contractors and cleaners.

In the absence of clear instructions, look for the closest E-Box and proceed there. The E-Boxes are placed throughout DND property and can easily be identified by their **orange colour and letter E on the side.**

NOTE: Do not depart your location until you have registered with one of the base's E-Boxes. If you fail to do so, valuable time may be spent searching for you.

Building Evacuations

All personnel, including contractors, should be familiar with the evacuation procedures for the site they are working in. Diagrams will be found in all buildings showing exits and locations of emergency equipment such as fire extinguishers and first aid kits. Take the time to review the diagrams and ask questions if you're unsure of local procedures.

Workplace violence constitutes any action, conduct, threat or gesture of a person towards an employee in their workplace that can reasonably be expected to cause harm, injury or illness to that employee. It includes, but is not limited to, the following:

Threatening behaviour - such as shaking fists, destroying property or throwing objects.

Verbal or written threats - any expression of an intent to inflict harm, including:

- **Direct threats** - clear and explicit communication which distinctly indicates that the potential offender intends to do harm, for example: "I am going to make you pay for what you did to me".
- **Conditional threats** - involves a condition, for example: "If you don't get off my back, you'll regret it".
- **Veiled threats** - usually involves body language or behaviours that leave little doubt in the mind of the victim that the perpetrator intends harm, for example: "Do you think anyone would care if someone beats up the boss?"

Harassment - any behaviour that demeans, embarrasses, humiliates, annoys, alarms, or verbally abuses a person and that is known to be, or would be expected to be unwelcome. This includes words, gestures, intimidation, bullying, or other inappropriate behaviours.

Verbal abuse - including swearing, insults, or condescending language.

Physical attacks - including hitting, shoving, pushing or kicking the victim, or inciting a dog to attack.

National Defence Policy

"The Canadian Forces and the Department of National Defence have a zero tolerance for all forms of work place violence."

"Incidents of work place violence, should they occur, will be responded to promptly by responsible and competent authorities to ensure that the work place remains a respectful and safe environment for everyone."

National Defence Occupational Health and Safety - Prevention of Violence in the Work Place Policy Statement.

Report all known or suspected injuries to the appropriate authorities. Accident Reporting (3)

This publication was produced for Contractors and their employees as a guide to Department of National Defence and CFB Esquimalt Safety and Environment programs. While every effort has been made to provide current and relevant information, Contractors must remain vigilant about ensuring they are fully informed of current legislation as it pertains to worker safety; occupational health and safety; and environmental controls.

This infoflip® is intended to be a quick reference and in many cases, Contractors will require access to the full directives or procedures to ensure they are compliant.

Produced under the authority of Formation Safety and Environment, CFB Esquimalt.

Recommendations for changes or improvements can be directed to:

Formation Safety and Environment
CFB Esquimalt
PO Box 17000 Stn Forces
+ESQ FSE Safety@FSE@Esquimalt (internal email)
250-363-7500

Annex F. UXO Guidance

Annex G. Security Requirements Checklist

Security Guide To R112349

- The only Security Requirement for this contract is that personnel working on this procurement require, as a minimum, a **RELIABILITY STATUS** before access to a secure site is granted. Contractor personnel working on DND sites shall abide by the National Defence Security Orders and Directives as well as any Information Technology publications that may apply. DND Unit Security Supervisors are responsible to brief Contractor employees on these policies and any other security instructions/policies as required. Foreign Contractors will abide by their Governments' national security regulations and/or bilateral agreements MOU.

- Prior to allowing access to secure premises, confirmation of Contractor personnel's security clearances must be forwarded on a Visit Clearance Request through the International Industrial Security Division (IISD) of Public Works & Government Services Canada (PWGSC) for approval and bear the name of this contract/project/program/contract number and the Project Officer.

- At no time will the contractor personnel be allowed to have any access to CLASSIFIED/PROTECTED data/documentation/systems and assets.

- Subcontracts containing security requirements are prohibited without the prior written authority of CISD/PWGSC.

DND Personnel:

DDSO-Industrial Security, is the contact person for information pertaining to security concerns identified in this procurement.

Industrial Personnel:

The Company Security Officer (CSO) or alternate may contact CISD/PWGSC for information pertaining to security concerns identified in this procurement. Foreign Suppliers shall direct security related inquiries to their responsible National Security Authority/Designated Security Authority (NSA/DSA), and shall adhere to instructions issued by their responsible NSA/DSA.

Security Requirements Checklist (SRCL) and Security Clause Instructions

✓ The Contract Security Program (CSP) provides the contract security requirement clauses and signature for SRCL #**R-112349** (see attached).

Prior to Contract Award

Provide a copy of these instructions, the security clauses, and signed SRCL to the procurement officer.

- As required by Treasury Board's Security and Contracting Management Standard and Public Services and Procurement Canada's (PSPC) Supply Manual:

  - **Confirm that the proposed supplier holds the appropriate level of security clearance** by verifying with the Industrial Security Sector at ssi-iss@tpsgc-pwgsc.gc.ca or 1-866-368-4646 / 613-948-4176. Should it be necessary to initiate a security clearance for the proposed supplier, submit the completed Private Sector Organization Screening (PSOS) form to the CSP at TPSGC.SSIINSCRIPTION-ISSREGISTRATION.PWGSC@tpsgc-pwgsc.gc.ca

  - Insert the provided security clause(s) into your contractual document (hereinafter referred to as *contract*) **exactly** as provided.

  - Your contract cover page must state:

    "**THIS DOCUMENT CONTAINS A SECURITY REQUIREMENT**"

    Attach the fully completed and signed SRCL to your contract document.

Foreign Ownership, Control or Influence (FOCI)
Access to Classified NATO, Foreign, or COMSEC information, assets or sites requires a FOCI evaluation. For information please contact the FOCI Office.

International Suppliers
When foreign bidders are anticipated, contact the CSP's International Industrial Security Directorate (IISD) for the applicable contract security clauses and further direction. If a foreign supplier is selected, contact the CSP's IISD for the contract security clauses specific to the chosen supplier's country of origin. Click here for information.

Controlled Goods
Access to Controlled Goods (identified in block 5a of the SRCL) requires that the supplier be registered in the Controlled Goods Program (CGP). Visit the CGP website for information.

Joint Certification Program
Access to unclassified military data (identified in block 5b of the SRCL) requires that the supplier register with the US/Canada Joint Certification Program (JCP). Visit the JCP website for information.

After Contract Award

- Provide the CSP at tpsgc.ssicontrats-isscontracts.pwgsc@tpsgc-pwgsc.gc.ca with a copy of the contract, and subsequent amendments. The contract must include the security clauses, signed SRCL, contract number, legal name of the supplier, contract award and expiry date, and the name of the procurement officer.
- When there is an Information Technology (IT) requirement (identified in Part C of the SRCL), include the following:
  - the Statement of Work,
  - the IT Security Requirements identified in a separate technical document,
  - the IT Connectivity Guide (if an IT link is required), and
  - the supplier's site address(es) where they will use their IT systems to electronically process, produce or store protected and/or classified information or data.

Recoverable Signature

X Vikenti Gorokhovski

Signed by: Gorokhovski, Vikenti

Contract Security Officer: Vikenti Gorokhovski
Contract Security Program
Public Services and Procurement Canada

SECURITY REQUIREMENT FOR CANADIAN SUPPLIER:
PWGSC FILE No. R-112349

1. The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid Designated Organization Screening (**DOS**), issued by the Contract Security Program (CSP), Public Works and Government Services Canada (PWGSC).

2. The Contractor/Offeror personnel requiring access to sensitive site(s) must EACH hold a valid **RELIABILITY STATUS**, granted or approved by the CSP, PWGSC.

3. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of the CSP, PWGSC.

4. The Contractor/Offeror must comply with the provisions of the:

   a) Security Requirements Check List and security guide (if applicable), attached at Annex ____;

   b) *Contract Security Manual* (Latest Edition).

EXIGENCE EN MATIÈRE DE SÉCURITÉ POUR ENTREPRENEUR CANADIEN :
DOSSIER TPSGC N° R-112349

1. L'entrepreneur ou l'offrant doit détenir en permanence, pendant l'exécution du contrat ou de l'offre à commandes, une attestation de vérification d'organisation désignée (**VOD**) en vigueur, délivrée par le Programme de sécurité des contrats (PSC), Travaux publics et Services gouvernementaux Canada (TPSGC).

2. Les membres du personnel de l'entrepreneur ou de l'offrant devant avoir accès à des établissements dont l'accès est réglementé doivent TOUS détenir une cote de **FIABILITÉ** en vigueur, délivrée ou approuvée par le PSC, TPSGC.

3. Les contrats de sous-traitance comportant des exigences relatives à la sécurité NE DOIVENT PAS être attribués sans l'autorisation écrite préalable du PSC, TPSGC.

4. L'entrepreneur ou l'offrant doit respecter les dispositions :

   a) de la Liste de vérification des exigences relatives à la sécurité et directive de sécurité (s'il y a lieu), reproduite ci-joint à l'Annexe _____ ;

   b) du *Manuel de la sécurité des contrats* (dernière édition).

Annex H. Archeological Guidelines

REPORT

Rocky Point RP-14 Soil Excavation Project

Guidelines for Archaeological Chance Find Management

Submitted to:

Public Services and Procurement Canada - Pacific Region, Government of Canada

Attention: Rob Thomas
Environmental Services
401-1230 Government Street
Victoria, BC V8W 3X4

Submitted by:

Golder Associates Ltd.
Suite 300, 398 Harbour Road, Victoria, BC V9A 0B7, Canada

+1 250 881 7372

20378358-003-R-Rev0

23 February 2021

Distribution List

1 Copy - Public Services and Procurement Canada

1 Copy - Golder

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FIGURE (ATTACHED)

APPENDICES

1.0 INTRODUCTION

The intent of this document is to familiarize Public Services and Procurement Canada (PSPC) personnel and their Contractors with the archaeological materials that may be encountered during environmental remediation works at the Department of National Defence (DND) Canadian Forces Ammunition Depot (CFAD) RP-14 Rocky Point Former Landfill (the Project), and to provide guidelines for the appropriate response to the identification of these cultural materials when observed. These guidelines are designed to minimize disruption to Project scheduling while promoting the preservation and proper management of archaeological materials. A step-by-step response procedure is outlined below, and contact names and telephone numbers are provided in Appendix A.
Basic archaeological site identification criteria are provided in Appendix B.

2.0 BACKGROUND

Planned excavation activities within the Project area have the potential to encounter archaeological artifacts, faunal material, or ancestral human remains. Registered archaeological sites DbRv-110 and DbRv-113 are located near the proposed environmental work area (Figure 1). Site DbRv-110 is located approximately 90 m to the southeast and extends for 125 m along the eastern shoreline of a small bay. The site consists of shell midden deposits on the shoreline that are eroding into the intertidal area. Site DbRv-113 is a shell midden with three bark- stripped western redcedars located 270 m to the west on a narrow, forested strip of land between Rocky Point Road and Pedder Bay.

3.0 GENERAL GUIDELINES FOR ARCHAEOLOGICAL CHANCE FIND MANAGEMENT

Guidelines for archaeological chance find management for intact or disturbed archaeological materials, and for human remains from any context, are presented separately below.

3.1 Guidelines for Archaeological Chance Find Management

3.1.1 Initial Response by Contractor

- **Step 1:** If archaeological deposits, artifacts or features are encountered, STOP WORK within 50 m of the find, and:
  - Secure the area with flagging tape or barricades to prevent personnel from entering.
  - Leave all materials in place and do not disturb any soils within 50 m of the find, including excavated material.
  - Record the location using flagging, GPS, or other location marking device.
- **Step 2:** Contact the PSPC representative **Rob Thomas** (1- 250-418-5731).
  - If Rob Thomas is unavailable contact **Kristen Ritchot** (PSPC) (250-208-4008)

- **Step 3:** PSPC will contact the Project Archaeologist for further guidance and notify DND.
  - **Dana Dalmer**, BA (250-213-7050) (Victoria) is the Golder contact.
  - If Dana Dalmer is unavailable, **Jeff Bailey**, MA, RPCA (250-419-4904) is the alternate Golder contact.
  - **Rachel Speller** (DND, primary) (250-818-0543)
  - **Tracy Cornforth** (DND, secondary) (250-363-5063)
- **Step 4:** The Project Archaeologist will advise on further action.

3.1.2 Initial Action

Depending on the nature of the situation, one of the following responses is likely:

- Based on a telephone description of the incident, it may be determined that materials are not archaeological, allowing work to resume.
- If unidentified bone or other material is observed, photos of the material may be sent to the Project Archaeologist for identification (if possible) while work in the immediate area ceases until further notice. Photos may not be taken or distributed for any other purpose.
- If observed or recovered materials cannot be identified remotely, a field visit by an archaeologist may be required to conduct a visual assessment. In this case, Golder will notify and coordinate with PSPC.
  - Where materials are confirmed to be archaeological, Golder will provide DND with management options on how to proceed. DND will engage with Indigenous groups to determine the preferred management option.
  - Indigenous groups may wish to visit the site to discuss the management options that have been recommended.

3.2 Human Remains

In the event that confirmed or possible human remains are encountered during the course of the Project the following steps will be followed:

- **Step 1: Stop all potentially damaging work within 50 m** of the site of potential ancestral/human remains until they can be assessed by a professional archaeologist.
- **Step 2: Do not disturb** any possible ancestral/human remains that are encountered. Do not move soil from the vicinity of the remains, including any excavated material. Do not photograph the remains unless directed to do so by DND, PSPC, or the Project Archaeologist. Cover the remains with a clean blanket and tarp or similar material, cordon off the site and do not permit access to the area. *Only Military Police personnel conducting their police investigation, or those authorized by the Military Police, will be permitted within the area*.
- **Step 3:** SNC-Lavalin or their contractors will immediately inform PSPC.

- **Step 4:** PSPC will contact the Project Archaeologist and DND.
- **Step 5:** The Project Archaeologist will identify the remains through visual examination only **(no materials are to be moved, touched, relocated, or removed from site)**. If the remains are confirmed or suspected to be human, the Project Archaeologist will notify PSPC/DND. DND will then contact the Military Police, who will take over the site.
- **Step 6:** DND will notify relevant Indigenous communities and will advise that a military police investigation will be occurring.
- **Step 7:** The Military Police will conduct an investigation in coordination with the BC Coroner's Service. Upon completion of their investigation and in consultation with BC Coroner's Service, MPs will identify whether the remains are non-forensic.
- **Step 8:** DND will communicate the results of the military police investigation to relevant Indigenous groups. If it is determined that the remains are archaeological in nature (non-forensic), DND will coordinate discussions with relevant Indigenous groups to establish an appropriate procedure for handling the remains and to determine if a representative(s) is available to visit the site with the archaeologist.
- **Step 9:** Once the MPs have completed their investigation and verified that the remains are non-forensic and relevant Indigenous groups have been notified by Maritime Forces Pacific (MARPAC) Formation Safety and Environment (FSE) and have advised of appropriate procedures for handling of the remains, an archaeologist and representative(s) from relevant Indigenous communities will visit the site as soon as possible to secure the remains in accordance with Indigenous community protocols (e.g., this will detail how the materials are to be handled and temporarily stored until reburial can proceed) and to develop management options for the site.

4.0 CURATION

Management options developed by the Project Archaeologist will include methods for the handling, storage, and analysis of collected artifacts, faunal material, and ancestral remains. These options will be discussed with Indigenous communities who will advise on the preferred option and will confirm handling procedures are acceptable.

5.0 CLOSURE

We trust that the information contained herein meets your present requirements. Please do not hesitate to contact Dana Dalmer (250-213-7050) if you have any questions or concerns regarding the above.

IF PUBLIC SERVICES AND PROCUREMENT CANADA, OR THEIR CONTRACTORS HAVE ANY CONCERNS ABOUT ARCHAEOLOGICAL DEPOSITS OR HUMAN REMAINS, THE PROJECT ARCHAEOLOGIST SHOULD BE CONTACTED FOR DIRECTION.

Golder Associates Ltd.

Dana Dalmer, BA
Archaeologist

Jeff Bailey, MA, RPCA
Principal, Senior Archaeologist

DD/JB/lmk/cmc

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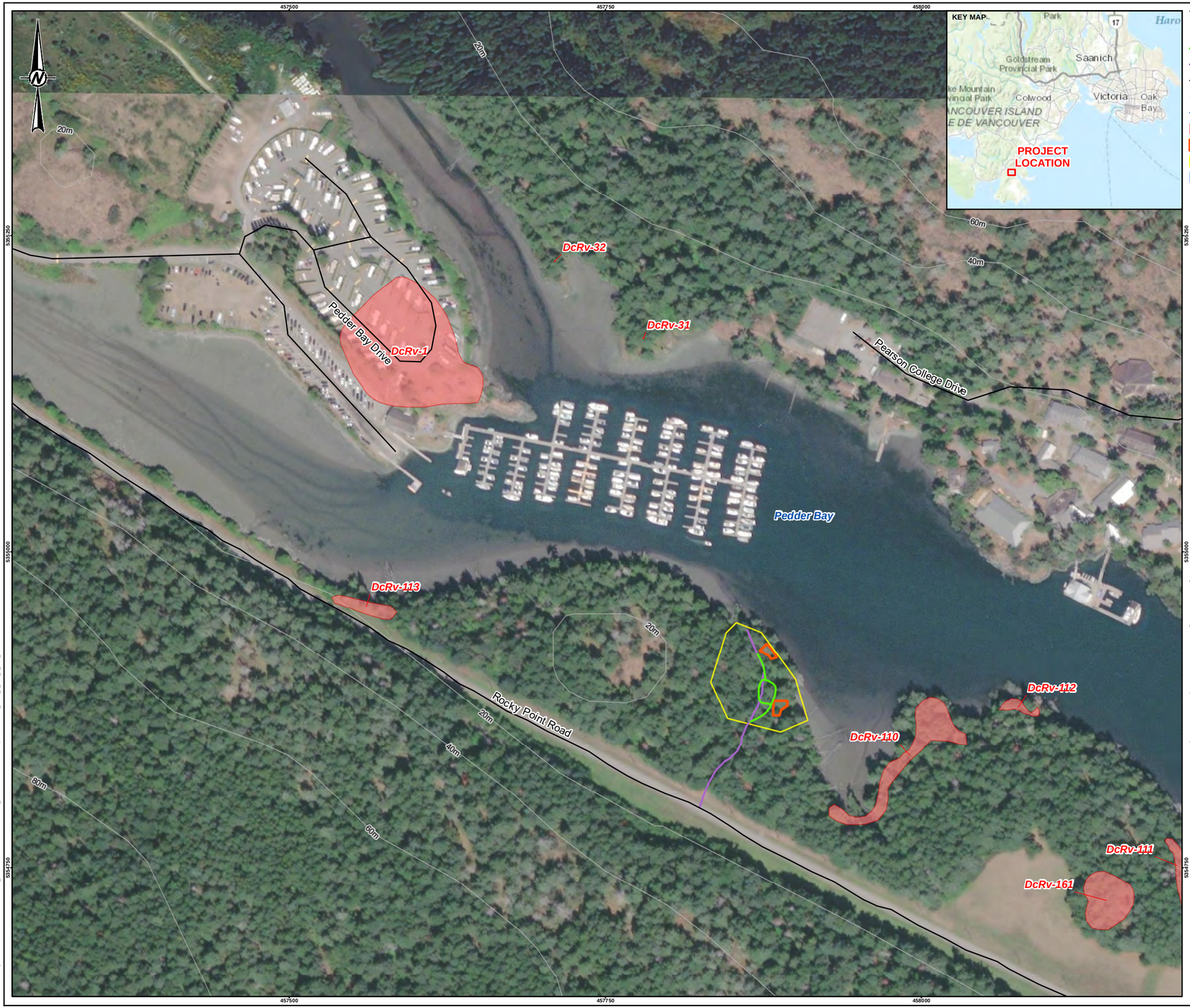

LEGEND

LABEL

- APPROXIMATE NEW EXCAVATION ACCESS AND TURNAROUND ROAD
- ACCESS ROAD
- ROAD
- CONTOUR (20m)
- WATERCOURSE
- RECORDED ARCHAEOLOGICAL SITE
- ESTIMATED EXCAVATION EXTENT
- RP-14 PROJECT AREA
- WATER BODY

0 60 120

1:3,000 METRES

NOTE(S)

1. LOCATIONS ARE APPROXIMATE.

REFERENCE(S)

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5. ARCHAEOLOGICAL SITES OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT ON 20210217.

COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N

CLIENT
PUBLIC SERVICES AND PROCUREMENT CANADA

PROJECT
RP-14, CFAD ROCKY POINT
METCHOSIN, BC

TITLE
PROJECT LOCATION AND ARCHAEOLOGICAL SITES

CONSULTANT
GOLDER

YYYY-MM-DD	2021-02-22
DESIGNED	DD
PREPARED	LH
REVIEWED	DD
APPROVED	JB

PROJECT NO.	CONTROL	REV.	FIGURE
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APPENDIX A

Contact Names and Telephone Numbers

CONTACT NAMES AND TELEPHONE NUMBERS

Public Services and Procurement Canada

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Kristen Ritchot	1-250-208-4008 mobile

Department of National Defence

Rachel Speller	1-250-818-0543 mobile
Tracy Cornforth	1-250-363-5063

SNC-Lavalin Inc.

TBD, Site Supervisor (Primary)	1-XXX-XXX-XXXX mobile

Project Archaeologists (Golder)

Dana Dalmer, (Victoria)	1-250-213-7050 mobile
Jeff Bailey, (Victoria)	1-250-889-2501 mobile

APPENDIX B

Basic Archaeological Site Identification Information

BASIC ARCHAEOLOGICAL SITE IDENTIFICATION INFORMATION

Typical criteria that may signal the presence of an archaeological site are described and illustrated in the sections below. This list is not exhaustive, but it includes the most common site indicators (features and artifact types) that may be encountered.

Research has demonstrated that the vast majority of objects manufactured and used by First Nations persons in the pre-European contact era were made from plant materials. However, organic materials tend not to be preserved over time, and therefore stone artifacts are most commonly encountered. Bone, antler, and shell artifacts may be found preserved in midden sites (see Feature – Shell Midden).

1.0 SITE TYPES

1.1 Site Type: Village or Camp

A number of well-documented First Nations village and camp sites are found in and around Pedder Bay. These sites are typically situated adjacent to the shore, especially at the outflow of creeks and rivers into the Pacific Ocean. Common site features are described below.

Shell Midden

Shell middens are cultural accumulations of shells, often stratified in intricate white and grey layers, mixed with charcoal, ash, and other debris. Shell middens result from the successive deposition of food remains and general refuse over time. Shell middens were also commonly used as human burial sites. **Look for: accumulations of layered, crushed, and whole shell, possibly mixed with charcoal, black 'greasy' soil, and other food remains (i.e., fish bone)** (Photo 1).

Photo 1: Typical exposure of shell midden deposits, Vancouver Island. Note dark, charcoal-rich matrix and layers of crushed shell. (© Golder Associates Ltd.).

Hearth / Steaming Pit

Hearth features are typically the remains of cooking fires, and consist of concentrations of charcoal, ash, and fire-reddened soil (Photo 2). These features may contain small bone fragments and heat-fractured stone (Photo 3) or small, uniform-sized pebbles that were heated and used to boil water. Hearth and steaming pit features are typically found near village sites or camps. **Look for: concentrations of charcoal and fractured pebbles with signs of having been burnt in a fire**.

Photo 2 – Cross section of a hearth feature composed of charcoal and ash with fire-cracked rock. (© Golder Associates Ltd.).

Photo 3 - Fire-cracked rock, Vancouver Island. Note the angular nature of the breakage pattern and evidence of exposure to fire. (© Andrew Mason).

1.2 Site Type: Lithic Scatter

Another common type of archaeological site that may be encountered is referred to as a lithic artifact scatter (Photo 4). These are typically locations where stone tools were manufactured (stone quarry locations or activity areas), used (e.g., butchering game), or repaired. **Look for: individual stone flakes or concentrations of stone flakes on the ground surface or in ground exposures (e.g., tree throws, cut banks). The raw material (stone type) will likely appear "out of place" and will exhibit a non-natural flaking pattern on one or more surfaces (see Artifacts – Chipped Stone).**

Photo 4 - Lithic artifact scatter. Note how the flakes (black stone) stand out from the background. (© Golder Associates Ltd.).

1.3 Site Type: Isolated Find

Isolated artifact finds may be encountered almost anywhere. These represent a wide range of artifact types that served a variety of functions. The most common objects will be made of stone. This chance find procedure document includes a number of images of artifact types, several of which could be encountered as an "isolated find." Photos 5 and 6 illustrate artifact types that are often recognized by the public and brought to museums. **Look for: formed objects of stone, bone, antler, or shell that do not appear natural or are composed of a raw material (e.g., stone) that is not common or native to the area.**

Photo 5 – Leaf-shaped projectile point. (© Golder Associates Ltd.).

Photo 6 - Nephrite (BC jade) adze blade from Vancouver Island. (© Andrew Mason).

1.4 Site Type: Forest Resource Utilization

First Nations forest utilization sites include a number of feature types, but all have the common characteristic of being above-ground tree features. These sites and features are commonly referred to as culturally modified trees (CMTs). There are two primary types of CMT: bark-stripped trees and aboriginally logged trees. Bark-stripped trees on Vancouver Island are typically Western redcedar trees that have had strips of bark removed for processing and manufacture into a wide range of objects (e.g., baskets, mats, clothing) (Photo 7). Douglas fir was also utilized.

Aboriginally logged trees may include trees that have had planks removed, sections removed, test holes cut to check for tree soundness (Photo 8), or simply the stump that was left behind after a log was harvested. Each of these CMTs have unique characteristics that attest to their First Nations origin. **Look for: standing trees with strips of bark removed on one or more sides, obvious tool (cut) marks, recesses chopped into trees and standing trees or logs with removed planks.**

Photo 7 - Contemporary Western redcedar CMT (bark removal). (© Andrew Mason).

Photo 8 - Western redcedar CMT with a “test hole” chopped to determine soundness. (© Ryan Sagarbarria).

1.5 Site Type: Burial

Based on oral testimony and archaeological evidence, the treatment of deceased Indigenous community members has changed through time. Practices have included in-ground burial, typically in midden sites, cairn burials, and mound burials. Each of these practices leaves a different archaeological signature and the remains may be found “intact” (e.g., midden or cairn internment) or as isolated bone elements (e.g., fallen from tree burials or other disturbed burial features). Burial sites are extremely sensitive and need to be treated with care and respect. **Look for: articulated or isolated bones or bone fragments, concentrations of natural cobbles or anomalous soil mounds of various sizes either with, or without, exposed cobbles** (Photos 9 and 10)

Photo 9 - Burial mound features. (© Andrew Mason).

Photo 10 – Burial cairn feature, Vancouver Island. (© Andrew Mason). Cairn features may manifest as a seemingly random collection of cobbles and boulders or may exhibit a square form or some other internal structure.

2.0 ARTIFACTS

The sites described in the preceding sections may include a wide range of artifact types composed of a variety of raw materials. To assist PSPC contractors with the identification of artifacts that may be encountered during the course of the project, the following sections provide additional examples. While this list is not exhaustive, it provides a good overview of the types of objects that could be expected to be encountered, the various types of raw materials, and manufacturing processes.

2.1 Artifacts – Chipped Stone

These common artifacts, found on south Vancouver Island, will be manufactured from stone, and formed by chipping – the purposeful removal of flakes to form a desired object such as a projectile point (Photos 11 and 12). This manufacturing process results in the finished project (the “tool”) and a large amount of waste rock (referred to as ‘debitage’). A large proportion (more than 95%) of lithic scatter sites are composed of debitage. **Look for: obviously formed chipped stone objects or stone flakes fashioned from fine-grained stone. Chipped stone tools and waste flakes will often exhibit a systematic or non-natural appearing flaking pattern on one or more surface. Flake edges may be extremely sharp.**

Artifact – Flakes

Photo 11 - Unmodified “waste” flakes (debitage). (© Golder Associates Ltd.).

Artifact – Projectile Points

Photo 12 – Chipped projectile points and projectile point fragments. (© Golder Associates Ltd.).

2.2 Artifacts – Ground Stone

Some stone artifacts were manufactured by grinding rather than chipping (Photos 13 to 15). These objects are typically made from slate or a related material. Given the greater fragility of the raw material, ground stone artifacts are often fragmentary.

Photo 13 - Ground slate knife fragment. (© Golder Associates Ltd.).

Photo 14 - Ground stone projectile points and projectile point fragments. (© Golder Associates Ltd.).

Photo 15 - Sandstone abrader fragment (whetstone). (© Golder Associates Ltd.).

2.3 Artifacts – Pecked Stone

Pecked stone artifacts are generally manufactured from a highly durable raw material and in some cases reflect a significant investment in labour for manufacture (Photos 16 and 17). Other examples, such as the hammerstone (Photo 10) below, are expedient tools that would have been discarded after use. **Look for: obvious modification/shaping through the application of a harder implement (e.g., hammerstone), pitting or pecking damage as illustrated in the hammerstone shown below (Photo 16).**

Artifact – Hammerstones

Photo 16 - Hammerstone with pitting/pecking damage at both ends. (© Andrew Mason).

Artifact – Hand Mauls

Hand mauls, or stone hammers likely represent a coveted tool given the great many hours that would have been required to manufacture each piece. The form of hand mauls tends to vary through time and can range from a basic flat top to more elaborate phallic forms (Photo 17). It is not uncommon to recover fragmentary hand mauls from sites.

Photo 17 - Hand maul. (© Golder Associates Ltd.).

2.4 Bone and Antler Artifacts

First Nations of the Northwest Coast made extensive use of bone and antler for the manufacture of both expedient and curated objects (Photos 18 to 22). **Look for: bone and antler artifacts exhibiting obvious modification (e.g., cutting, shaping, incision).**

Photo 18 - Bone bipoints. (© Golder Associates Ltd.).

Photo 19 - Bone awls. (©Golder Associates Ltd.).

Photo 20 - Antler tine wedges. (© Golder Associates Ltd.).

Photo 21 - Barbed harpoon. (© Golder Associates Ltd.).

Photo 22 - Toggling harpoon valves. (© Golder Associates Ltd.).

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