

**Phase 1C – COMPENSATORY FISH HABITAT
CONSTRUCTION, DUNN’S NOOK,
COLWOOD, BC**

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APPENDIX A – DATA REPORTS

1. Golder Associates Ltd., 2012. Habitat Compensation Site Assessment: Preliminary Sediment Quality Assessment at Dunn's Nook, Esquimalt Harbour, BC. Prepared for PWGSC. Golder Report No. 11-1436-0061/13000. August 8, 2012.
2. Golder Associates Ltd., 2013. Habitat Compensation Site Assessment: Subsurface Investigation Dunn's Nook, Esquimalt Harbour, BC. Prepared for PWGSC. Golder Submission No. 17008_001/23007_001. March 25, 2013.

APPENDIX B – ENVIRONMENTAL REQUIREMENTS

1. Golder Associates Ltd., 2013. Environmental Management Plan, Habitat Compensation 100% Design: Dunn's Nook, Esquimalt Harbour, BC. Prepared for PWGSC. Report No. 11-1436-0061/26000. April 29, 2013.
2. Fisheries Act Sub-Section 35(2)(b) Authorization for Works, Undertakings or Activities Affecting Fish Habitat and Fisheries Act Section 32(2)(c) Authorization for Killing of Fish (Authorization No.: 11-HPAC-PA3-00016; for reference only).

DRAWINGS (bound separately)

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END OF SECTION

GENERAL INSTRUCTIONS

1. PART 1 – GENERAL

1.1 Codes

- .1 Perform work to current Codes, Construction Standards, Standards and Bylaws.

1.2 Description of Work

- .1 Work under this Contract covers the construction of compensatory fish habitat, consisting of watercourse/drainage channels, intertidal banks/flats and intertidal marsh habitat for the Esquimalt Graving Dock Waterlot Remediation Project – Phase 1C and associated remediation (excavation) of Contaminated Sediments. The compensatory habitat is to be constructed at Dunn's Nook, located at the Department of National Defence (DND) Canadian Forces Base (CFB) Esquimalt, Colwood Property, BC. Dunn's Nook is an intertidal basin located on the West side of Esquimalt Harbour and the Work under this Contract includes the excavation of contaminated sediments and backfilling with clean imported fill materials, construction of intertidal marsh habitat, erosion protection (which includes protection of an archaeological site), water control and management during construction, and marsh vegetation planting. The construction components of the Work are referred to as Stage 1. The marsh vegetation planting is referred to as Stage 2. The final stage of the Work (Stage 3) is to conduct two years of maintenance.
- .2 The Colwood property is an actively used facility and the Contractor shall be required to maintain traffic management throughout the duration of the construction activities. Access across Wilfert Road (minimum one lane) shall be maintained for traffic at all times. Access into Dunn's Nook will be restricted to the southeast corner of the basin.
- .3 The Contractor shall provide all supervision, labour, materials, supplies, tools, equipment, transportation, receiving, handling, storage, quality control, environmental protection, and all other services necessary for the proper execution of the Work. Work to be performed under this Contract includes, but is not limited to, the following items which are covered further in the Contract documents.
 - .1 Contractor and public Health and Safety Responsibility.
 - .2 Environmental protection responsibility.
 - .3 Complying with all submission and documentation requirements as outlined in the Contract documents.
 - .4 Co-ordination with the Departmental Representative (and designees) in performance of all work.
 - .5 Conducting progress topographic/bathymetric surveys.

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- .6 Implementation of water management measures to control water flow from Esquimalt Harbour through existing culverts and permeable road fill located at the east end of Dunn's Nook, beneath Wilfert Road. This will include blocking of three (3) existing culverts beneath Wilfert Road to prevent water ingress and the passage of marine life during construction and may include, but is not limited to, use of pumps, sumps and hydraulic barriers as necessary to control water ingress such that quality control of the construction can be ensured. The Contractor will also be required to provide access and time, approximately one (1) day, for the Departmental Representative to conduct a fish salvage, once the culverts have been blocked and prior to construction activities within the basin. Placement of a silt curtain in Esquimalt Harbour, east of Dunn's Nook, is also required to contain turbidity from discharge of water from dewatering operations and general construction activities.
- .7 Pumping out of water within Dunn's Nook to allow for excavation of contaminated sediments and construction of the compensatory habitat. Construction or provision of water treatment facility to remove total suspended solids and contaminants prior to discharge of water to the marine environment. The discharge point shall be located inside a silt curtain that shall be supplied and placed by the Contractor along the east (harbour) side of Dunn's Nook.
- .8 Removal of guardrail at the southeast corner of the basin to facilitate access into Dunn's Nook and replacement with the same or better following completion of the Stage 1 Works.
- .9 Construction of a temporary access ways from the parking lot, located west of Wilfert Road, into Dunn's Nook to facilitate access for equipment and materials. Note that this is the only access point into Dunn's Nook for equipment and materials.
- .10 Set-up and maintenance of a Contractor Staging and Laydown Area. The area available to the Contractor for staging works and storing equipment is shown on the Drawings. The Contractor shall remove all items relating the Staging and Laydown Area following completion of the Stage 1 Works.
- .11 Provision of Contractor office for the duration of the Stage 1 Works. The Contractor shall also provide an office, telephone and internet for the Departmental Representative.
- .12 Excavation of contaminated sediments within Dunn's Nook. The Contractor shall excavate sediments that contain metals, PAHs and PCBs at concentrations greater than numeric Remedial Action Objectives (RAOs) for off-site disposal. The extent and depths of excavation are shown on the Drawings, but in general, excavations will range from 0.5 – 1.0 m in depth. Confirmatory sampling will be undertaken by the Departmental Representative following the excavation and the Contractor may be requested to excavate additional material based on the results. The Contractor shall maintain the open excavation for a period of five working (5) days until the confirmatory sampling results have been received and assessed by the Departmental Representative.

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- .13 Additional processing, if required, of excavated sediment (soils) in the Contractor Staging and Laydown Area to further dewater the soils such that they are suitable for transport to an offsite Disposal Facility. If additional processing is deemed necessary by the Contractor, for example the addition of a stabilizing agent such as lime or cement, prior acceptance shall be obtained from the Departmental Representative. Leachate from the dewatering must be collected and treated to meet the requirements of the Environmental Management Plan (EMP), as provided in Appendix B of these Specifications, and the Contractor Environmental Protection Plan prior to discharge. Water that does not meet the requirements shall be disposed off-site at a Waste Water Treatment and Disposal Facility. If stabilizing agents are added to the excavated material, run-off water shall be collected for treatment and tested prior to discharge to the marine environment, in accordance with the EMP. If treated water does not meet the requirements of the EMP water shall be disposed off-site by the Contractor at a permitted Wastewater Treatment and Disposal Facility that meets the requirements of these Specifications.
- .14 Transport and off-site disposal of contaminated sediments/soils at a Disposal Facility that is permitted to accept the material. Transport to a Treatment Facility is optional; however, the final deposition of the contaminated sediments/soils shall be at a Disposal Facility. The Contractor is required to identify the Treatment Facility and/or Disposal Facility or facilities that are to be used, as part of the tender submission. The Contractor shall confirm that the Treatment Facility and/or Disposal Facility or facilities meet the requirements of these Specifications, to the satisfaction of the Departmental Representative.
- .15 Transport of materials onto and from site is only permitted by truck transport (i.e., no in-water transport from site is permitted).
- .16 Removal of three (3) timber pilings.
- .17 Removal of any miscellaneous debris encountered during the Work.
- .18 Demarcation of recorded archaeological sites and protection of archaeological resources during the Work.
- .19 Placement of a cobble apron to protect archaeological materials and to mitigate erosion.
- .20 Import and placement of fill material to the design elevations for marsh habitat construction, as presented on the Drawings.
- .21 Construction and grading of channels within the backfilled areas.
- .22 Planting of marsh vegetation within the intertidal marsh benches – Stage 2 Works.
- .23 Provision of 2 years of plant maintenance, which will include selective pruning and clearing, shall be required to fulfill the Contract – Stage 3 Works.

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- .4 The Contractor becomes the owner of, and is responsible for, any soil, sediment or other material once it is loaded on a vehicle, barge or other vessel for transportation to a Disposal Facility or Treatment Facility.
- .5 "Green" Requirements:
 - .1 Use only environmentally responsible green materials/products with no Volatile Organic Compound (VOC) emissions or minimum VOC emissions for improved air quality – subject to the Departmental Representative's acceptance of submitted Material Safety Data Sheet (MSDS) Product Data.
 - .2 Use materials/products containing highest percentage of recycled and recovered materials practicable – consistent with maintaining cost effective satisfactory levels of competition.
 - .3 Adhere to waste reduction requirement for reuse or recycling of waste materials, thus diverting materials from landfill.
- .6 Additional Contracts may be in progress at the same time that this Contract is awarded. The Departmental Representative shall be responsible for coordination of activities between multiple contractors.

1.3 Contract Documents

- .1 The Contract documents, Drawings and Specifications are intended to complement each other, and to provide for and include everything necessary for the completion of the Work.
- .2 The work to be performed by the Contractor shall include all of the requirements specified throughout each of the sections that comprise the Specifications unless otherwise expressly stated to be performed by others. To fully comprehend the Work, the Specifications shall be read in conjunction with the Drawings, the Unit Price Table, the reference documents and other Contract documents.
- .3 Drawings are, in general, diagrammatic and are intended to indicate the scope and general arrangement of the Work.

1.4 Definitions

- .1 **Aquatic Environment:** Refers to an environment that is considered fish habitat as defined in the Fisheries Act.
- .2 **Certificate of Disposal.** The Certificate of Disposal shall be a document issued by the Disposal Facility, which includes, on company letterhead, the name and location where the material is being disposed, a description of the date and quantity for each shipment of material received, total quantity of material received, and signature by the identified authorized company representative.

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- .3 **Certificate of Final Completion.** The Certificate of Final Completion is a document issued by the Contracting Authority to confirm that the Work has been completed and inspected for compliance with the Contract Documents and that defects have been corrected and deficiencies completed. The Certificate of Final Completion will be issued following the provision of the two year maintenance period by the Contractor – Stage 3 of the Works.
- .4 **Certificate of Treatment.** The Certificate of Treatment shall be a document issued by the Treatment Facility, which includes, on company letterhead, the name and location where the material is being treated, a description of the date and quantity for each shipment of material received, total quantity of material received, data and quantity of material for each treatment event, laboratory certificates demonstrating treatment objectives were met, total quantity of material treated, and signature by the identified authorized company representative.
- .5 **Contaminated Sediments.** For the purposes of this Contract, Contaminated Sediments are those sediments that exceed the site specific numeric Remedial Action Objectives for the project. The Contractor shall review data reports presented in Appendix A to these Specifications to understand the concentrations of contaminants that are present within sediments that will be encountered as part of the Stage 1 Work. For the purposes of this Contract, Contaminated Sediments could also include materials that may be considered soils.
- .6 **Construction Work Plan.** The Construction Work Plan is a pre-construction submittal that details the Contractor means and methods for completion of the Contract. The Construction Work Plan must be reviewed and accepted by the Departmental Representative prior to the start of the Stage 1 Work.
- .7 **Contractor Staging and Laydown Area.** The Contractor Staging and Laydown Area is defined as the upland area located in the parking lot adjacent to the Dunn's Nook Work Site, where the Contractor may stage equipment, office and hygiene facilities, and temporarily store and process excavated materials prior to removal to an off-Site Disposal and/or Treatment Facility.
- .8 **Contractor Office Facilities Area.** The Contractor Office Facilities Area is defined as the upland area located in the parking lot adjacent to the Dunn's Nook Work Site, where the Contractor may set-up office and hygiene facilities.
- .9 **Deleterious Substance.** A Deleterious Substance is per the definition of the Fisheries Act. Generally, it is a substance that if added to water, makes the water deleterious to fish or fish habitat or any water containing a substance in such quantity or concentration or has been changed by heat or other means, that if added to water makes that water deleterious to fish or fish habitat.
- .10 **Disposal Facility.** An existing facility located in Canada where waste is placed in or on land and that is designed, constructed and operated to prevent any pollution from being caused by the facility outside the area of the facility. The facility must hold and provide documented proof of a valid and subsisting permit, certificate,

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approval, or any other form of authorization issued by a province or territory for the disposal of soil or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands or any other land use specified in the BC Contaminated Sites Regulations.

- .11 **Environmental Management Plan (EMP).** The EMP identifies components of the Work that could present a hazard to the environment and, therefore, require environmental management and monitoring. The overall objective of the EMP is to provide a framework through which potential environmental risks shall be managed during implementation of the remediation and compensatory habitat construction activities. The EMP provides guidance and generally accepted best management practices (BMPs) and mitigation measures, to assist the Contractor in preparation of the Environmental Protection Plan (EPP). The EMP also includes a Sediment/Soil and Water Management Plan and an Archaeological Monitoring Plan. The Contractor shall adhere to the EMP, associated documents and the Departmental Representative-accepted EPP. In the event of a discrepancy between the EMP and provisions of federal, provincial, municipal legislation, regulations or by-laws, the more stringent provisions resulting in the higher protection of the environment will prevail. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor shall respect provincial laws and municipal bylaws and rules at the Dunn's Nook Work Site.
- .12 **Environmental Pollution and Damage.** Presence of chemical, physical, or biological elements or agents that substantially alter or impair human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally, and/or historically.
- .13 **Environmental Protection.** Environmental Protection includes prevention/control of pollution and reduction of disruption to the habitat or environment during construction. Control of environmental pollution and damage requires consideration of land, water, air, and biological and cultural resources; it also includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; and radiant energy, as well as other pollutants.
- .14 **Environmental Protection Plan (EPP).** The Contractor shall submit an EPP that presents the procedures by which the Contractor shall establish and maintain quality control for environmental protection of all items of the Work. The EPP shall include plans for:
1. Erosion and Sediment Control.
 2. Environmental Pollution Prevention and Control.
 3. Wastewater Management.

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The EPP shall demonstrate the Contractor's means and methods for complying with the Environmental Protection requirements of the Specifications, the performance standards and other requirements of the EMP, the requirements of the project Fisheries Act Authorization, and any other environmental requirements under federal, provincial, municipal, local, or other legislation, regulations, codes, or bylaws. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor shall respect provincial laws and municipal bylaws and rules at the Dunn's Nook Work Site. This EPP shall address all construction activities. The EPP shall also include a section on sustainability strategies that the Contractor will employ during the Works. The EPP must be reviewed and accepted by the Departmental Representative prior to the start of Stage 1 Work.

- .15 **Equipment Decontamination Facility.** The Contractor Equipment Decontamination Facility is the area where equipment used for the excavation of Contaminated Sediments will be cleaned and where water will be collected, tested and treated to confirm that it meets the requirements of the EMP prior to discharge.
- .16 **Health and Safety Plan.** The Contractor shall submit a site-specific and project-specific Health and Safety Plan that covers all health and safety considerations for Contractor staff and other personnel that may access the Work Site, and defines an emergency response plan (i.e., procedures to be followed and contacts in the event of an emergency). The Health and Safety Plan will be reviewed by the Departmental Representative, prior to the start of Stage 1 Work. The Departmental Representative review does not constitute acceptance nor relieve the Contractor of its legal obligations for the provision of health and safety on the project.
- .17 **Materials Source Separation Plan (MSSP).** The Contractor shall prepare and implement an MSSP that outlines measures to separate re-usable and/or recyclable materials for waste generated during the project, as outlined in Specification 01 74 19.
- .18 **Permits:** For the purpose of this Contract, Permits refers to any permit, authorization or other formal approval issued by a federal, provincial or municipal agency or authority from which documented written approval must be sought prior to undertaking of Works.
- .19 **Post- Construction Survey:** The Post Construction Survey shall be completed by the Contractor to document post-construction elevations following completion of each component of the Stage 1 Work. The Post-Construction Survey will be used for measurement of Contractor Work completed within the Work Site. The Contractor shall conduct a further survey to document post-construction elevations, prior to undertaking planting – Stage 2 Works.

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- .20 **Pre-construction Meeting.** The Pre-Construction Meeting shall be defined as the coordination meeting attended by the Departmental Representative and the Contractor, including key Sub-contractors, prior to the start of Stage 1 Work. The Contractor shall schedule the Pre-Construction Meeting following award of Contract.
- .21 **Pre-Construction Survey.** The Pre-Construction Survey shall be completed by the Contractor to document bathymetry within Dunn's Nook (sub-tidal) and topographic (intertidal and shoreline) conditions in advance of conducting the Stage 1 Work. Upon acceptance by the Departmental Representative the Pre-Construction Survey will be used as the basis for measurement of Contractor Work completed within the Dunn's Nook Work Site.
- .22 **Pre-Construction Site Inspection.** This meeting is defined as a Pre-Construction Site Inspection to record material differences between actual site conditions and the existing site conditions described by the Contract documents. All material differences noted by the Contractor and brought to the attention of the Departmental Representative shall be recorded by the Contractor.
- .23 **Progress Meeting.** Progress Meeting is defined as a meeting between the Departmental Representative and the Contractor that shall occur on a weekly basis throughout the duration of the Work. The Contractor shall be responsible for scheduling Progress Meetings with the Departmental Representative.
- .24 **Progress Surveys.** Progress Surveys shall be completed by the Contractor to document progress of construction activities and for quality control in accordance with the Design Drawings. Progress Surveys shall be used for progress payment to the Contractor.
- .25 **Project Manager.** The Contractor Project Manager is as per the definition of the Superintendent in the General Conditions and shall be present at the Work Site during working hours until the Work has reached completion. The Project Manager/Superintendent shall be in full charge of the operations of the Contractor during the performance of the Works and shall be authorized to accept on behalf of the Contractor any notice, order or other communication given to the Contractor relating the Work.
- .26 **Quality Control Plan.** The Contractor shall submit a Quality Control Plan that outlines Quality Control (QC) measures that will be implemented over the duration of the Work. As part of the plan the Contractor shall describe the means and methods for completion of surveys and establishment of positional control at the Work Site. The plan shall also include, but not be limited to, measures outlined in Specification 01 45 00.
- .27 **Re-classification.** If the Contractor decides to transport the contaminated sediments/soils to a Treatment Facility prior to disposal, re-classification shall be defined as the process by which the Contractor conducts testing of sediments, soils and debris generated at the Dunn's Nook Work Site following treatment in order to lower the disposal threshold to below Industrial Land Use (IL+) standards. Re-classification of Hazardous Waste shall not be allowed as part of the Stage 1 Work.

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- .28 **Record Drawings.** Record Drawings are defined as completion records that are based on survey data, documenting final “as-built” conditions and document conditions by which each Stage of construction activities are completed at the Dunn's Nook Work Site. Record Drawings will serve as the final record of conditions at completion of each Stage of Work and shall be submitted to the Departmental Representative as hardcopies and in electronic format as AutoCAD 2012 or earlier version files.
- .29 **Remedial Action Objectives:** In these Specifications, Remedial Action Objectives refers to the numeric sediment criteria for metals, PAHs and PCBs, that have been used to define the extent of remedial excavation that is to be undertaken as part of the Contract. The numeric Remedial Action Objectives will be used to evaluate the results of confirmatory sampling and assess the need for additional excavation. Confirmatory sampling and assessment will be undertaken by the Departmental Representative.
- .30 **Sediment Processing Area.** The Sediment Processing Area refers to an area within the Contractor Staging and Laydown Area where excavated materials may be temporarily be stored and processed by the Contractor to facilitate dewatering prior to transport of materials off-site to a permitted Disposal and/or Treatment Facility. The Sediment Processing Area shall be fully contained (e.g., using lock blocks and geomembranes) and leachate/surface water run-off collection shall be provided. Materials must be transported off-site to a Treatment and/or Disposal Facility, within 48 hours of excavation.
- .31 **Standby Time.** Standby Time refers to the unit rate that is established for time that Work is unable to proceed due to non-specified delays caused solely by the Departmental Representative. Reviews, sampling or other work conducted by the Departmental Representative which have a time duration identified will not result in an increase in either the Contract price or the Contract time.
- .32 **Stormwater Pollution Prevention Plan.** The Contractor shall submit a Stormwater Pollution Prevention Plan as part of the Environmental Protection Plan (EPP) that presents the procedures by which the Contractor shall protect the Dunn's Nook Work Site from collection of storm water. The Stormwater Pollution Prevention Plan will include, but not be limited to, measures outlined in Specification 01 35 13.43.
- .33 **Tailgate Meeting.** Tailgate Meeting is defined as a meeting undertaken between the Contractor's employees (including subcontractors) and field monitoring personnel working on the project that shall occur on a daily basis throughout the duration of the Work, and shall focus on daily Health and Safety considerations associated with planned construction activities. The Contractor shall be responsible for scheduling daily Tailgate Meetings with the Departmental Representative.
- .34 **Tender Item.** Tender Item is defined as a measure of work presented on the Unit Price Table by which the Contractor shall provide a cost to complete each work item as part of the tender process.

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- .35 **Treatment Facility.** An existing facility located in Canada designed, constructed and operated for the handling or processing of waste in such a manner as to change the physical, chemical or biological character or composition of the waste. The facility must hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a province or territory for the treatment of soil or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands or any other land use specified in the BC Contaminated Sites Regulation.
- .36 **Wastewater Treatment and Disposal Facility.** A facility designed, constructed, and operated for the primary purpose of treating and disposing of wastewater. The facility must hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a province or territory for the operation of the facility, treatment, and disposal of the treated wastewater.
- .37 **Wetland:** A wetland is defined as land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation and various kinds of biological activity which are adapted to a wet environment.
- .38 **Work Site.** The Work Site is defined as the boundaries within which construction activities shall be completed under this Contract, as shown on the Drawings. The Contractor Staging and Laydown Areas are located immediately adjacent to the Work Site.

1.5 Other Operators and Contractors

- .1 Other contractors operate at the Colwood Property.
- .2 Cooperate with other Contractors in carrying out their respective Works and carry out instructions from the Departmental Representative.
- .3 Coordinate work with that of other Contractors through the Departmental Representative. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to the Departmental Representative, in writing, any defects or conflicts which may interfere with proper execution of this Work.

1.6 Division of Specifications

- .1 The specifications are subdivided in accordance with the current 6-digit National Master Specifications System.
- .2 A division may consist of the work of more than one (1) subcontractor. Responsibility for determining which subcontractor provides the labour, material, equipment and services required to complete the work rests solely with the Contractor.

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1.7 Time of Completion and Construction Windows

- .1 The following scheduling conditions are fundamental to the Contract:
 - .1 Complete the Stage 1 Work of this project, by October 30, 2013, unless otherwise agreed to in writing by the Departmental Representative
 - .2 The standard fisheries construction windows when in-water construction is permitted are as follows:
 - .1 July 1st through September 30th (in the same year); December 1st (in the same year) through February 15th (of the following year).
 - .2 In accordance with the Fisheries Act Authorization, in-water works may also be undertaken during the period:
 - 1. February 15th up to, and including, March 31st.
 - 2. October 1st through December 1st.
 - 3. June 1st through June 30th.
 - .3 Commence the planting of marsh vegetation (Stage 2 Work) no earlier than February 17, 2014 and complete the planting of marsh vegetation by March 28, 2014. The Contractor shall be responsible for selecting the optimum schedule for planting during this period to ensure survival rate of plants and may submit a request for extension to the schedule for planting, in writing, to the Departmental Representative, clearly stating the reasoning.

1.8 Hours of Work

- .1 Restrictive as follows:
 - .1 Normal work hours are between 07:00 am to 07:00 pm Monday to Friday, not including statutory holidays.
 - .2 Contractor may request to work outside the normal work hours identified in Section 01 11 55 Clause 1.8.1.1. The Contractor shall submit the request to the Departmental Representative a minimum of 96 hours in advance of all after-hours work, including weekends and holidays.

1.9 Work Schedule

- .1 Schedule work as follows:
 - .1 Within ten (10) working days after Contract award, provide a "phasing bar chart" and a preliminary schedule showing anticipated work breakdown progress stages and final completion of the Work within the time period required by the Contract documents. The preliminary schedule must allow time for inspections and other activities to be carried out by the

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Departmental Representative such as the confirmatory sampling outlined in Specification 31 23 16. The Contractor shall also allow time in the schedule for the Departmental Representative to conduct a fish salvage, once the temporary measures to prevent water ingress through the culverts during construction, have been implemented by the Contractor. The preliminary schedule shall indicate the following:

- .1 Submission of all submittals including shop drawings, product data, MSDS sheets, samples and record drawings.
- .2 Commencement and completion of work of each section of the specifications or trade for each phase as outlined.
- .3 Final completion date within the time period required by the Contract documents.
- .2 The schedule shall show specific tasks, dates and critical path of anticipated stages of work.
- .3 This preliminary schedule will be accepted by the Departmental Representative or returned for correction within five (5) working days. Within five (5) working days, the Contractor shall revise the preliminary schedule in accordance with the Departmental Representative's corrections and re-submit the revised schedule for acceptance. Upon acceptance, the schedule shall become the construction work schedule.
- .4 Do not change accepted schedule without notifying the Departmental Representative.
- .5 The Contractor shall review and update the construction work schedule for each weekly progress meeting. All changes to the construction work schedule of more than three (3) working days shall be documented on the updated schedule and shall be submitted in both writing and electronic format (emailed) and submitted to the Departmental Representative.
- .6 Interim reviews of work progress based on work schedule will be conducted as decided by the Departmental Representative and schedule updated by Contractor in conjunction with and to the acceptance of the Departmental Representative.

1.10 Measurement and Payment

- .1 Before submitting the first progress claim, the Contractor shall submit a breakdown of the Contract unit rates and lump sum prices in detail as directed by the Departmental Representative, aggregating to the Contract price.
- .2 Measurement and payment for work completed to the Departmental Representative's satisfaction will be made as stipulated in the relevant technical section of the Specification for that work item.

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1.11 Codes, Bylaws, Standards

- .1 Comply with the Fisheries Act Authorization for the Project.
- .2 Perform work in accordance with the National Building Code of Canada (NBC), and other indicated Codes, Construction Standards and/or any other Code or Bylaw of local application.
- .3 Comply with all federal, provincial and local bylaws, rules and regulations.
- .4 Meet or exceed requirements of Contract documents, specified standards, codes and referenced documents.
- .5 In any case of conflict or discrepancy, the most stringent requirements shall apply.

1.12 Documents Required

- .1 Maintain one (1) copy each of the following at the job site:
 - .1 Contract Drawings.
 - .2 Contract Specifications.
 - .3 Addenda to Contract documents.
 - .4 Environmental Management Plan.
 - .5 Fisheries Act Authorization.
 - .6 Environmental Protection Plan.
 - .7 Health and Safety Plan.
 - .8 Copy of accepted work schedule.
 - .9 Reviewed/accepted shop drawings.
 - .10 Change orders.
 - .11 Other modifications to Contract.
 - .12 Notice of Project (NOP), as submitted to WorkSafe BC, must be posted on site.
 - .13 Field test reports.
 - .14 Reviewed/accepted samples.
 - .15 Manufacturers' installation and application instructions.
 - .16 One set of Record drawings and specifications for "as-built" purposes.
 - .17 Current construction standards of workmanship listed in technical Sections.

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1.13 Regulatory Requirements

- .1 Obtain and pay for any additional permits, certificates, licenses, and other approvals that have not been provided by the Departmental Representative and that are required by regulatory municipal, provincial, or federal authorities, and commercial facilities to be used to complete the Work.
- .2 Comply with municipal, provincial, and federal codes and regulations relating to work, including health and safety.
- .3 Provide inspection authorities with plans and information required for issue of acceptance certificates.
- .4 Furnish inspection certificates in evidence that the work installed conforms to the requirements of the authority having jurisdiction.

1.14 Contractor's Use of Site

- .1 Contractor's work site and Staging and Laydown Area is indicated on the Drawings.
- .2 Contractor is designated as Prime Contractor on Contractor's work site and assumes all responsibilities of Prime Contractor as per relevant acts and regulations. Contractor shall be responsible for all work on Contractor's work site.
- .3 Use of Contractor's work site:
 - .1 Exclusive and complete for execution of the Work.
 - .2 Assume responsibility for assigned premises for performance of the Work.
 - .3 Coordinate all work activities on the Contractor's work site, including the work of other contractors engaged by the Departmental Representative.
 - .4 Maintain access across Wilfert Road (minimum one lane) for traffic at all times.
 - .5 Provide security of Contractor's work site and all Contractor's and Subcontractor's equipment and material. Secure Contractor's work site at the end of each work day.
- .4 Perform work in accordance with Contract documents. Ensure work is carried out in accordance with indicated phasing.
- .5 Do not unreasonably encumber site with material or equipment.
- .6 Any area in the Colwood property to which access is restricted by sign is a secured or restricted area and shall not be entered.
- .7 Do not obstruct access to DND property outside of the Contractor's work site. Maintain overhead clearances, keep roadways and walkways clear, and maintain routes for emergency response vehicles.

GENERAL INSTRUCTIONS

1.15 Examination

- .1 Examine site and be familiar and conversant with existing conditions likely to affect work.
- .2 Provide photographs of surrounding properties, objects and structures liable to be damaged or be the subject of subsequent claims.

1.16 Existing Services

- .1 Contractor is responsible for notifications (e.g., BC-One-Call) to all utilities and service providers impacted by the intended Work and obtaining clearance from DND Base Construction Engineering Office (BCEO).
- .2 Identify location of utilities and services (above and below ground) that may be impacted by the Work. Obtain necessary approvals/permits for protection or diversion of services as necessary.
- .3 Where work involves breaking into, or connecting to, existing services, carry out work at times directed by the Departmental Representative.

1.17 Setting Out of Work

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated on the Drawings.
- .2 Provide all equipment, devices, materials, labour and supplies needed to lay out and construct the Work.
- .3 Facilitate the Departmental Representative's inspection of the Work.

1.18 Acceptance of Substrates

- .1 The Contractor shall examine surfaces, surfaces prepared by others and job conditions which may affect his/her work, and shall report defects to the Departmental Representative. Commencement of work shall imply acceptance of prepared work or substrate surfaces.

1.19 Quality of Work

- .1 Ensure that quality workmanship is performed through use of skilled tradesmen, under supervision of qualified journeyman.
- .2 In cases of dispute, decisions as to standard or quality of work rest solely with the Departmental Representative, whose decision is **final**.

GENERAL INSTRUCTIONS

1.20 Works Coordination

- .1 Coordinate work of sub-trades.
 - .1 Designate one person to be responsible for review of Contract documents and shop drawings and managing coordination of the Work.
- .2 Convene meetings between subcontractors whose work interfaces and ensure awareness of areas and extent of interface required.
 - .1 Provide each subcontractor with complete plans and specifications for the Contract, to assist them in planning and carrying out their respective work.
 - .2 Develop coordination drawings when required, illustrating potential interference between work of various trades, and distribute to affected parties.
 - .1 Pay particular close attention to overhead work and within or near to building structural elements.
 - .2 Identify on coordination drawings; building elements, service lines, rough-in points and indicate location services entrance to site.
 - .3 Facilitate meeting and review coordination drawings. Ensure subcontractors agree and sign off on drawings.
 - .4 Publish minutes of each meeting.
 - .5 Plan and coordinate work in such a way to minimize quantity of service line offsets.
 - .6 Submit copy of coordination drawings and meeting minutes to the Departmental Representative for information purposes.
- .3 Submit shop drawings and order of prefabricated equipment or rebuilt components only after coordination meeting for such items has taken place.
- .4 Work coordination:
 - .1 Ensure cooperation between trades in order to facilitate general progress of work and avoid situations of spatial interference.
 - .2 Ensure that each trade provides all other trades reasonable opportunity for completion of work and in such a way as to prevent unnecessary delays, cutting, patching and removal or replacement of completed work.
 - .3 Ensure disputes between subcontractors are resolved.
- .5 The Departmental Representative is not responsible for, or accountable for extra costs incurred as a result of Contractor's failure to coordinate the Work.

GENERAL INSTRUCTIONS

1.21 Submittals

- .1 In accordance with Section 01 33 00 (Submittal Procedures), submit the requested drawings, product data, MSDS sheets, test reports and samples indicated in each of the technical Sections.
- .2 The Contractor shall allow a minimum of five (5) working days for the Departmental Representative review of each submittal and an additional five (5) working days for re-submittals.
- .3 Re-submittals are the responsibility of the Contractor and shall be compensated at no additional costs to the Departmental Representative. Submittals shall be completed by the Contractor to the satisfaction of the Departmental Representative.
- .4 Allow sufficient time for the following:
 - .1 Review of product data.
 - .2 Acceptance of shop drawings.
 - .3 Review of re-submissions.
 - .4 Ordering of accepted material and/or products.

1.22 Relics and Antiquities

- .1 Demarcate the location of recorded archaeological sites prior to the Stage 1 Work, as identified in the EMP.
- .2 Provide access to the work areas for Archaeological Monitors during construction.
- .3 Relics and antiquities and items of historical or scientific interest shall remain the property of Canada care of the Department Representative. Protect such articles and request directives from the Departmental Representative.
- .4 Give immediate notice to the Departmental Representative if evidence of archeological finds are encountered during excavation/construction, and await the Departmental Representative's written instructions before proceeding with work in this area.

1.23 Products Supplied by Departmental Representative

- .1 Products supplied by the Departmental Representative: none.

GENERAL INSTRUCTIONS

1.24 Security Clearances

- .1 Personnel employed on this project will be subject to the current requirements for DND properties, as identified in the Invitation to Tender. Obtain requisite clearances, as instructed, for each individual required to enter the landside premises at Colwood.
- .2 Contractor shall secure the Contractor's work site and its contents throughout the construction period.

1.25 Project Meetings

- .1 Weekly progress meetings will be required.
- .2 The Contractor shall arrange project meetings and assume responsibility for setting times.
- .3 Contractor shall be responsible for recording and distributing meeting minutes.

1.26 Testing and Inspection

- .1 Particular requirements for inspection and testing to be carried out by the Contractor's Quality Control testing service or laboratory are specified in the Contract Documents.
- .2 Any laboratory utilized by the Contractor must have the appropriate certification in accordance with ISO/IEC Standard 17025. The Contractor shall submit documentation showing that the proposed laboratory is certified for the specific parameters of concern and proposed analytical methods with the pre-construction submittals.
- .3 The Contractor shall appoint and pay for the services of Quality Control testing agency or testing laboratory as specified, and where required for the following:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
- .4 Where tests or inspections by designated testing laboratory reveal work is not in accordance with the Contract requirements, Contractor shall pay costs for additional tests or inspections as the Departmental Representative may be required to verify acceptability of corrected work.
- .5 Notify the Departmental Representative in advance of planned testing.
- .6 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

GENERAL INSTRUCTIONS

- .7 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and accepted by the Departmental Representative.
- .8 Provide the Departmental Representative with electronic (excel) and two (2) hard copies of testing laboratory reports as soon as they are available.
- .9 The Departmental Representative may require, and pay for, additional inspection and testing services beyond those specified or otherwise required.

1.27 Record Documents (for “as-built” purposes)

- .1 The Departmental Representative will provide two (2) sets of Contract Drawings, two (2) sets of specifications, and two (2) copies of the original AutoCAD files for “Record” purposes.
- .2 As work progresses, maintain accurate records to show all deviations from the Contract documents. Annotate the specifications, Contract Drawings and shop drawings as changes occur.
- .3 Review “Record” information with the Departmental Representative during every project progress meeting to ensure up-to-date documentation at the completion of project.
- .4 Upon completion of work, provide a complete and final set of record drawings that are based on survey data, documenting final “as-built” conditions, and that are submitted as hardcopies and in electronic format as AutoCAD 2012 or earlier version files.
- .5 Refer to Section 01 78 00 (Closeout Submittals).

1.28 Cleaning

- .1 Conduct cleaning and disposal operations daily. Comply with local ordinances and environmental protection and anti-pollution laws.
- .2 Ensure cleanup of the work areas each day after completion of work.
- .3 Conduct daily cleaning of roads as needed or upon request by the Departmental Representative.
- .4 Use cleaning materials and methods in accordance with instructions of the manufacturer of the surface to be cleaned.

1.29 Dust Control

- .1 Provide temporary dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Stage 1 Work and public.
- .2 Maintain and relocate protection until such work is complete.
- .3 Refer to Section 02 55 10 (Dust Control).

GENERAL INSTRUCTIONS

1.30 Environmental Protection

- .1 Prevent extraneous materials from contaminating land, water, air or any other media beyond the construction area, by providing temporary enclosures during work if determined to be required by the Departmental Representative. The Contractor will be responsible for any contamination that occurs beyond the Dunn's Nook Work Site which is directly related to the Work at the site.
- .2 Do not dispose of waste or volatile materials into water courses, storm or sanitary sewers.
- .3 Ensure proper disposal procedures in accordance with all regulations.

1.31 Maintenance Materials, Special Tools and Spare Parts

- .1 Specific requirements for maintenance materials, tools and spare parts are specified in individual sections of the Specification.

1.32 Additional Drawings

- .1 The Departmental Representative may furnish additional drawings for clarification. These additional drawings have the same meaning and intent as if they were included with plans referred to in the Contract documents.
- .2 Upon request, the Departmental Representative may furnish up to a maximum of ten (10) sets of Contract documents for use by the Contractor at no additional cost. Should more than ten (10) sets of documents be required the Departmental Representative will provide them at additional cost.

1.33 Building Smoking Environment

- .1 Comply with DND Smoking Policy and designated smoking areas.

1.34 System of Measurement

- .1 The metric system of measurement (SI) will be employed on this Contract.

1.35 Familiarization with Site

- .1 Before submitting tender, Contractor to attend a mandatory site visit, as indicated in Tender documents, and Contractor to become familiar with all conditions likely to affect the cost of the Work.
- .2 No claims or change orders will be entertained by the Departmental Representative in regards to existing conditions.

GENERAL INSTRUCTIONS

1.36 Submission of Tender

- .1 Submission of a tender is deemed to be confirmation of the fact that the Tenderer has analyzed the Contract documents and inspected the site, and is fully conversant with all conditions.

1.37 Surveying

- .1 Within ten (10) working days after Contract award, submit to the Departmental Representative the name of the Professional Engineer or Land Surveyor who shall be responsible for the preparation and submittal of the "Record" drawings of the constructed Stage 1 Works.
- .2 "Record" drawings, showing the final accurate "as-built" condition of the constructed works, prepared, sealed and signed by a Professional Engineer or Land Surveyor registered to practice in the Province of British Columbia, shall be submitted to the Departmental Representative as required by Section 01 78 00 (Closeout Submittals).

1.38 Substantial Performance of Work

- .1 Substantial Performance of the Work will be determined when all activities associated with Stage 1 and Stage 2 of the Works have been completed and passed inspection and testing.

1.39 Completion

- .1 The Works shall be deemed to have reached Completion when all labour, plant and materials have been performed, used or supplied and the Contractor has complied with the Contract and all orders and directions made pursuant thereto, to the satisfaction of the Departmental Representative. Completion will be assessed following the provision of the two year maintenance period by the Contractor – Stage 3 of the Works.

END OF SECTION

Part 1 GENERAL

1.1 Description of Work

- .1 Meetings shall be required throughout the duration of the Work as described in these Specifications.
- .2 The Contractor shall attend all required meetings and provide required preparation and follow-up materials.

1.2 Related Sections

- .1 01 11 55 General Instructions
- .2 01 33 00 Submittal Procedures

1.3 Definitions

- .1 Refer to Section 01 11 55 (General Instructions) for definitions related to this Contract.

1.4 Measurement and Payment

- .1 No separate payment will be made for effort associated with project meetings. The Contractor shall refer to the Unit Price Table for details regarding measurement and payment for the Works described in the Contract Documents.

1.5 Administrative

- .1 The Contractor shall complete the following activities regarding administration of meetings throughout the progress of the work:
 - .1 Schedule and administer Progress Meetings and Tailgate Meetings as required, or at the request of the Departmental Representative.
 - .2 Prepare agenda's for Progress Meetings.
 - .3 Provide physical space and make arrangements for Progress Meetings and Tailgate Meetings.
 - .4 Preside at Progress Meetings and Tailgate Meetings.
- .2 The Contractor will record the Progress Meeting minutes, including significant proceedings and decisions, and identify actions by parties.

PROJECT MEETINGS

- .3 The Contractor will reproduce and distribute copies of Progress Meeting minutes within three (3) working days after meetings and transmit to meeting participants. The Departmental Representative will review meetings minutes and request changes as applicable. The Contractor shall provide a final copy of meeting minutes within three (3) days after receipt of comments from the Departmental Representative.
- .4 Representatives of the Contractor, sub-contractors and suppliers attending Progress Meetings will be qualified and authorized to act on behalf of the party each represents.

1.6 Pre-construction Meeting

- .1 Within fifteen (15) days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Consultant, Contractor and major Subcontractors shall be in attendance.
- .3 Establish time and location of meeting and notify parties concerned a minimum of five (5) days before meeting.
- .4 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with the Construction Progress Schedule.
 - .3 Schedule of Submittals, in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site signage, offices, storage, utilities, fences in accordance with Section 01 51 00 – Temporary Facilities.
 - .5 Delivery schedule of specified equipment.
 - .6 Health and Safety.
 - .7 Environmental, archaeological issues and resolutions.
 - .8 Site security in accordance with Contract Documents.
 - .9 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .10 Owner provided products.
 - .11 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .12 Closeout Submittals in accordance with Section 01 78 00 - Closeout Submittals.
 - .13 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .14 Appointment of inspection and testing agencies or firms.
 - .15 Insurances, transcript of policies.

PROJECT MEETINGS

1.7 Pre-construction Site Inspection

- .1 The pre-construction site inspection will be held during or immediately after the pre-construction meeting. This inspection shall be attended by the Departmental Representative, Consultant, Contractor and major Subcontractors.
- .2 The purpose of the pre-construction site inspection is to record material differences between actual site conditions and the existing site conditions as described by the Contract Documents. During the site inspection, the Departmental Representative will take photographs of pertinent existing site conditions for record purposes and it is anticipated that the Contractor will do the same.
- .3 All material differences noted by the Contractor and brought to the attention of the Departmental Representative, including any immediate actions to resolve the differences, shall be recorded and issued as an attachment to the meeting minutes.

1.8 Contractor Construction “Kick-off” Meeting

- .1 The Contractor's construction kick-off meeting shall be held at Dunn's Nook Work Site at a time and date established by the Contractor. This meeting will require attendance (at a minimum) by the Departmental Representative, Consultant, Contractor's Project Manager/Superintendent and Site Supervisor.
- .2 The purpose of the meeting will be for the attendees to meet and discuss project specific health and safety, environmental management, construction and archaeological monitoring, project communications and Work Schedule. During the meeting the Contractor shall provide a health, safety and environment briefing and the Departmental Representative or Consultant shall provide a briefing of environmental and construction monitoring that will be undertaken and provide an archaeological briefing.

1.9 Progress Meetings

- .1 During course of Work, schedule progress meetings weekly.
- .2 Contractor, main subcontractors involved in the Work, Departmental Representative and Consultant are to be in attendance.
- .3 The Contractor shall record minutes of meetings and circulate to attending parties for review and comment within 3 days after meeting. Issue final minutes to attending parties and affected parties not in attendance within three (3) days after receipt of comments.
- .4 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.

PROJECT MEETINGS

- .2 Review of Work progress since previous meeting.
- .3 Health and safety and environmental management.
- .4 Field observations, problems, conflicts.
- .5 Co-ordination with DND.
- .6 Problems which impede construction schedule.
- .7 Corrective measures and procedures to regain projected schedule.
- .8 Revision to construction schedule.
- .9 Progress schedule, during succeeding work period.
- .10 Review submittal schedules: expedite as required.
- .11 Maintenance of quality standards.
- .12 Review proposed changes for affect on construction schedule and on completion date.
- .13 Review of expectations for current week;
- .14 Other business.

1.10 Tailgate Meetings

- .1 During the course of the work, the Contractor shall schedule daily Tailgate Meetings to occur at the start of each work shift. Tailgate meetings shall be attended by the Contractor work crew and any other sub-contractor's involved with the work activities that day. The Departmental Representative and other parties may also attend these meetings.
- .2 Tailgate Meeting agendas shall include, at a minimum, the following:
 - .1 Sign-in of all attendees.
 - .2 Planned work activities and environmental considerations for that shift.
 - .3 Health, safety and environment. Hazards associated with these work activities, including environmental hazards (e.g., potential for hypothermia, heat exhaustion, or heat stroke).
 - .4 Discussion of near misses and incidents that may have occurred during the previous work and procedures on how these incidents will be avoided in the future.
 - .5 Appropriate job-specific safe work procedures.
 - .6 Required personal protective equipment (PPE).
 - .7 Appropriate emergency procedures

Part 2 PRODUCTS

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

SUBMITTAL PROCEDURES

Part 1 GENERAL

1.1 Description

- .1 The Contractor shall be required to provide submittals to the Departmental Representative in advance of, throughout the duration of the Works and following completion of the Works.
- .2 This Section specifies general requirements and procedures for the Contractor's submissions following award of the Contract. These documents will be submitted to the Departmental Representative either for review and acceptance or for information purposes, as identified in the individual Specification Sections.

1.2 Measurement and Payment

- .1 No separate payment will be made for Submittal Procedures. The Contractor shall refer to the individual Specification Sections, including the Unit Price Table for details regarding measurement and payment for the Contract Works.

1.3 Related Sections

- .1 All Sections of these Contract documents shall apply to requirements for submittals associated with the Works. The Contractor shall review and be familiar with the structure of submittals required for this Contract.

1.4 Definitions

- .1 Refer to Section 01 11 55 General Instructions for all definitions related to this Contract.

1.5 Submittals

- .1 This summary list is presented for the Contractor's convenience only, no warranty is given to its accuracy or completeness. In the event of any discrepancies with the requirements of individual Specification Sections, those individual Sections apply.

SUBMITTAL PROCEDURES

SUMMARY LIST OF SUBMITTALS

Pre-Construction Submittals

Section	Clause	Submittal	Due
01 11 55	-	Construction Work Plan (CWP). Per the Specifications, the CPW shall include but not be limited to:	15 days after Contract Award
01 51 00	1.5	<ul style="list-style-type: none"> • Methods and sequencing. • Backfill materials and sources. • Water control during construction. 	
01 74 19	1.5	<ul style="list-style-type: none"> • Site Layouts (unless provided in the EPP). • Excavation and handling of materials, including contaminated materials and dewatering. 	
31 23 16	1.7	<ul style="list-style-type: none"> • Transport and disposal of materials. • Best Management Practices. 	
35 20 23	1.7	<ul style="list-style-type: none"> • Number and types of equipment to be used. • Materials source separation program. • Procedures for waste reduction. 	
31 23 23	1.6	Records of Utility Locates, Clearances and Permits (where applicable).	
01 35 33	1.12	Notice of Project (NOP)	Prior to starting Work
01 35 33	1.15	Material Safety Data Sheets (MSDS)	Submit with Health and Safety Plan and Environmental Protection Plan
01 11 55	1.9	Schedule of Work	10 days after Contract Award
01 11 55 02 21 13	1.37 1.1	Name of Professional Engineer or Land Surveyor of Record	10 days after Contract Award
02 21 13	1.5	Pre-Construction Survey	2 weeks prior to start of Works.

SUBMITTAL PROCEDURES

Section	Clause	Submittal	Due
01 35 43	1.4	Environmental Protection Plan (EPP). Per the Specifications, the EPP shall include but not be limited to:	15 days after Contract Award
01 11 55	1.3, 1.11, 1.19	<ul style="list-style-type: none"> Names of persons responsible for ensuring adherence to the EPP; Training requirements for personnel; General environmental pollution prevention and control; Erosion and sediment control, including silt curtain control; 	
01 35 13.43	1.21, 1.23, 1.24, 1.3	<ul style="list-style-type: none"> Aquatic water quality control; Wastewater management; Stormwater pollution prevention; Environmental management during transport and disposal; Traffic control; 	
01 51 00	1.5	<ul style="list-style-type: none"> Site layouts (e.g., storage, decontamination, access and egress, staging, temporary facilities); Spill prevention and contingency; Emergency procedures for environmental management; 	
01 74 19	1.5	<ul style="list-style-type: none"> Temporary storage, segregation, handling and disposal of waste materials; Treatment and Disposal Facility permit documentation. 	
01 35 33	1.13, 1.14	Health and Safety Plan, including Emergency Response Plan	15 days after Contract Award
01 45 00	1.5	Quality Control Plan.	15 days after Contract Award
32 72 00	1.6		
01 35 33	1.5	Copies of Reports/Directions Issued by Federal and Provincial Health and Safety Inspectors	As required.
01 35 33	1.5	Copies of Incident and Accident Reports	As required.
01 11 55	1.5, 1.26	Credentials of Testing Laboratories	10 days after Contract Award.
01 45 00	-		

SUBMITTAL PROCEDURES

Section	Clause	Submittal	Due
01 45 00 31 23 23	-	Quality Control and Laboratory Test Reports	At least 2 weeks before materials are brought onto site.
35 20 23	1.10	Certificate of Qualification (if applicable)	15 days after Contract Award.

Progress Submittals

Section	Clause	Submittal	Due
01 31 19	1.5, 1.6	Agenda(s) for Contractor Construction Kick-off Meeting, Progress Meeting(s) and Tailgate Meeting(s)	5 working days prior to meeting
01 31 19	1.5, 1.6	Minutes of Contractor Construction Kick-off Meeting, Progress Meeting(s) and Tailgate Meeting(s)	Prior to next meeting or 3 working days after meeting, whichever is less.
01 74 19	1.5	Daily Construction Records	Copies to be provided upon request by Departmental Representative and in the Weekly Construction Reports.
31 23 16	1.7		
35 20 23	1.7		
01 74 19	1.5	Weekly Construction Report	Weekly, the Wednesday following the week that the report pertains to.
31 23 16	1.7		
01 35 13.43	3.3		
02 21 13	1.5		
01 33 00	-	Manufacturers Product Specifications	2 weeks prior to use.
01 45 00	-	Quality Control and Laboratory Test Reports	As per Specifications and on receipt.
31 23 23	-		
01 74 19	1.5		
01 35 13.43	-		
01 35 43	-		
32 72 00	-		

SUBMITTAL PROCEDURES

Section	Clause	Submittal	Due
02 21 13	1.5	Progress Survey(s) and Volumes	As per Specification.
31 23 16	-		
31 23 23	-		
01 74 19	-		
01 74 19	1.5	Certificates of Treatment (if required)	Within 45 days of material being removed from the Work Site.
01 74 19	1.5	Certificates of Disposal	Within 45 days of material being removed from the Work Site.
01 74 19	1.5	Manifests for Waste Disposal	Daily, as available and included in the Weekly Construction Reports.
01 74 19	1.5	Weight Tickets, and Documentation	Within 10 days of removal.

Post-Construction Submittals

Section	Clause	Submittal	Due
01 78 00	-	Record Drawing(s)	2 weeks prior to Substantial Performance of the Work.
02 21 13	1.7		
01 78 00	1.16	Certificate of Completion	15 days following completion of Works.
02 21 13	-	Post-Construction Surveys and calculated quantities	3 working days after completion of Work.

SUBMITTAL PROCEDURES

Section	Clause	Submittal	Due
01 74 19	1.5	Certificates of Treatment (if required)	Within 45 days of material being removed from the Work Site.
01 74 19	1.5	Certificates of Disposal	Within 45 days of material being removed from the Work Site.
01 78 00	1.15	Warranties, Bonds, Test Reports, Inspection Reports	10 working days following completion of each Stage of Works.

1.6 References

.1 NOT USED

1.7 Administrative

- .1 Submit to Departmental Representative all submittals listed for review as described in the Contract documents. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Allow sufficient time for the following:
 - .1 Review of product data.
 - .2 Acceptance of shop drawings.
 - .3 Review of re-submissions.
 - .4 Ordering of accepted material and/or products.

SUBMITTAL PROCEDURES

- .3 The Contractor shall allow a minimum of five (5) working days for Departmental Representative review of each submittal and an additional five (5) working days for re-submittals. The Contractor shall provide re-submittals within five (5) working days of receipt of Departmental Representative comments. For pre-construction submittals, working days refer to Monday through Friday.
- .4 Do not proceed with Work affected by a submittal until Department Representative review, and acceptance if appropriate, is complete.
- .5 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .6 Where items or information is not produced in SI Metric units converted values are acceptable.
- .7 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 co-ordinated with requirements of Work and Contract Documents. Submittals with content that does not meet the requirements of the Specifications, not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .8 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract documents stating reasons for deviations.
- .9 Verify field measurements and affected adjacent Work is co-ordinated.
- .10 The Contractor's responsibility for errors and omissions in submission is not relieved or diminished by the Departmental Representative's review and acceptance of submittals.
- .11 The Contractor's responsibility for deviations in submission from requirements of Contract documents is not relieved by Departmental Representative review and acceptance of submittals.
- .12 The Contractor shall revise all submittals that are determined to be inadequate or non-compliant with the Contract documents.
- .13 Re-submittals are the responsibility of the Contractor and shall be compensated at no additional costs to PWGSC. Submittals shall be completed to the satisfaction of the Departmental Representative.
- .14 Keep one reviewed copy of each submission on site.

SUBMITTAL PROCEDURES

1.8 Shop Drawings and Product Data

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of British Columbia, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 5 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, in duplicate, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

SUBMITTAL PROCEDURES

- .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 1 year of date of contract award for project.
- .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

SUBMITTAL PROCEDURES

- .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative .
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .21 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.9 Reporting

- .1 Daily Record Keeping: The Contractor shall maintain Daily Records of the Works including items such as daily activities undertaken, personnel and equipment on-site, log of materials imported to the site, any environmental or health and safety issues, testing and inspections undertaken, record of the areas excavated, the estimated excavation volume, records of surveys, record of where material has been removed to (e.g., temporary Sediment Processing Area or off-site for disposal) and a summary of other relevant field observations and details of the Work. These daily records shall be submitted to the Departmental Representative on request and shall be included in the Weekly Construction Report. Daily records shall be signed by the Contractor's site superintendent and Quality Control Manager.

SUBMITTAL PROCEDURES

- .2 Weekly Reporting: As part of the Weekly Construction Report, the Contractor shall summarize the week's work activities, provide copies of daily records, test reports, Record Drawings and Progress Surveys and submit the report to the Departmental Representative each Monday morning. The Weekly Construction Report shall identify Work completed to date, anticipated Work to be completed in the present week (including specific areas identified for excavation, backfilling or habitat restoration) and present the latest Progress Survey and Record Drawings. The Weekly Report shall also identify any outstanding issues or items requiring response by the Departmental Representative. The Weekly Construction Report shall be signed by the Contractor's site superintendent and Quality Control Manager.

1.10 Mock-Ups

- .1 Not Used.

1.11 Photographic Documentation

- .1 Contractor is responsible for obtaining approval from the Departmental Representative to take photographs at the site.
- .2 Submit electronic and hard copy of colour digital photography in jpg format, standard resolution, monthly with progress statements as directed by Departmental Representative.
- .3 Project identification: name and number of project and date of exposure indicated.
- .4 Number of viewpoints: 4 locations.
 - .1 Viewpoints and their location as determined by Departmental Representative.
- .5 Frequency of photographic documentation: as directed by Departmental Representative.
 - .1 Upon completion of: excavation, backfilling, wetlands restoration and before concealment, of Work, as directed by Departmental Representative.

1.12 Certificates and Transcripts

- .1 Immediately after award of Contract, submit WorkSafe BC status.

PART 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Esquimalt Graving Dock Waterlot Remediation Project
Phase 1C Compensatory Habitat Construction
Dunn's Nook, Colwood, BC
Project No. R.018400.001

01 33 00

SUBMITTAL PROCEDURES

PART 3 EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

- .1 This Section describes special project procedures that are applicable for work performed at contaminated sites, such as the Dunn's Nook Work Site. In addition, it includes methods and procedures for procurement, fabrication, construction, maintenance, and repair of silt curtains required during completion of the Stage 1 Work. The Contractor shall be responsible for adhering to these special procedures while completing all work under this Contract.
- .2 Other Specification Sections, the Environmental Management Plan (EMP), the Fisheries Act Authorization and other project permits/authorizations may also contain specific requirements for environmental protection. Material suppliers and suppliers of marsh plants may have special provisions for handling and installation and these requirements must be followed by the Contractor. Those specific requirements are in addition to the requirements in this section; the more stringent requirements shall control. The control of environmental pollution requires consideration of noise levels, air, water, and land.
- .3 Environmental degradation arising from construction activities shall be prevented, abated, controlled, and minimized by complying with all applicable federal, provincial, and local laws and regulations concerning environmental pollution control and abatement, as well as the specific requirements in the EMP, Fisheries Act Authorization and other potential project permits/authorizations.
- .4 The Contractor shall comply with all permit conditions.
- .5 The Contractor is responsible for Environmental Protection during all construction activities at all locations where it performs work. Work locations include, but are not limited to, the Dunn's Nook Work Site, off-site locations used by the Contractor, and during transportation of excavated material to the Treatment Facility and/or Disposal Facility. This section primarily addresses work conducted at the Dunn's Nook Work Site, but the Contractor is responsible for complying with environmental protection regulations at all locations that are used.

1.2 Measurement and Payment Procedures

- .1 Except for Siltation Control and Water Treatment, and Water Management and Control, no separate payment will be made for Special Project Procedures for Contaminated Sites. The Contractor shall refer to the Unit Price Table for details regarding Measurement and Payment for the Contract work.

**SPECIAL PROJECT PROCEDURES FOR
CONTAMINATED SITES**

- .2 Payment for Siltation Control (including silt curtains) and Water Treatment shall be by Lump Sum and will be paid for under the allowance Tender Item for SILTATION CONTROL and WATER TREATMENT.
- .3 Payment for Water Management and Control (including dewatering) for the duration of the Stage 1 Work, shall be by Lump Sum and will be paid for under the allowance Tender Item for WATER MANAGEMENT and CONTROL.

1.3 Submittals

- .1 Submit to the Departmental Representative, 15 days after Contract Award, an Environmental Protection Plan (EPP); see Section 01 35 43 (Environmental Procedures).
- .2 Submittals for Progress Meetings: Make submittals at least 24 hours prior to scheduled progress meetings, including copies of transport manifests, trip tickets, and disposal receipts for all waste materials removed from the Dunn's Nook Work Site.
- .3 Site Layouts: Prior to mobilization to Dunn's Nook Work Site, and as part of the Construction Work Plan or EPP; submit site layout drawings for the Dunn's Nook Work Site (including Contractor's Staging and Laydown Area), showing existing conditions and facilities, temporary facilities and temporary controls provided by the Contractor including the following:
 - .1 Equipment and personnel decontamination areas.
 - .2 Means of ingress, egress, and temporary traffic control facilities.
 - .3 Equipment staging areas.
 - .4 Exclusion zones, contaminant reduction zones, and other zones specified in the Contractor's site-specific Health and Safety Plan.
 - .5 Grading, including contours, required to construct temporary facilities.
 - .6 General storage.
 - .7 Refuse storage.
 - .8 Wastewater treatment facilities as necessary.
 - .9 Wastewater storage areas as necessary.
- .4 If some of this information is provided in the Construction Work Plan, appropriate references to the Construction Work Plan or copies of relevant figures shall be provided in the EPP.

1.4 Definitions

- .1 Refer to Section 01 11 55 (General Instructions) for definitions.

1.5 Related Sections

- .1 01 11 55 (General Instructions)
- .2 01 33 00 (Submittal Procedures)
- .3 01 35 43 (Environmental Procedures)
- .4 02 55 10 (Dust Control)
- .5 35 20 23 (Stockpile Dewatering and Transportation)

1.6 Sequencing and Scheduling

- .1 Do not commence work involving contact with potentially contaminated materials until all environmental controls (including, but not limited to, water management, silt curtains, decontamination facilities and stockpile areas) are operational and accepted by the Departmental Representative.

1.7 Equipment Decontamination Facility

- .1 Prior to commencing work involving equipment contact with potentially contaminated materials, design and construct an equipment decontamination area to accommodate largest piece of potentially contaminated equipment.
- .2 Provide, operate, and maintain necessary equipment, pumps, and piping required to collect and contain equipment decontamination wastewater and sediment and transfer materials to permitted storage or disposal facilities.
- .3 Refer to Section 01 35 43 (Environmental Procedures) for additional information regarding the Equipment Decontamination Facility.

1.8 Wastewater Management and Disposal

- .1 Wastewater management and disposal requirements provided in this section apply to management of wastewater at the Dunn's Nook Work Site. The Contractor shall be responsible for compliance with permit conditions for wastewater management and disposal activities performed at the Sediment Processing Area and any other off-site facilities used by the Contractor.
- .2 Provide, operate, and maintain wastewater storage tanks to store wastewaters.
- .3 Wastewater includes handbasin and shower wastewaters from personnel hygiene/decontamination facility; water collected from dewatering operations; and water collected from Equipment Decontamination Facility.
- .4 Store wastewaters from dewatering operations and Equipment Decontamination Facility in separate tank from wastewater from personnel hygiene/decontamination facility.

**SPECIAL PROJECT PROCEDURES FOR
CONTAMINATED SITES**

- .5 If toilet facilities are provided in personnel hygiene/decontamination facility, store wastewater from these toilets with wastewater from handbasins and showers for ultimate disposal off site.
- .6 Discharges: Comply with applicable discharge limitations and requirements; do not discharge wastewaters to site sewer systems that do not conform to, or are in violation of, such limitations or requirements; and obtain the Departmental Representative's acceptance prior to discharge of wastewater.
 - .1 Do not discharge wastewater from personnel hygiene/decontamination facility or toilet facilities on site. Dispose of these wastewaters off-site at permitted Wastewater Treatment and Disposal Facility.
 - .2 Wastewater from upland and sediment dewatering, and equipment decontamination, to be discharged to Esquimalt Harbour but within a silt curtain at the Dunn's Nook Work Site, provided it meets requirements for discharge per the EMP.
 - .3 In the event that the Contractor selects, with the acceptance of the Departmental Representative, to add stabilizing agents such as cement to facilitate dewatering of excavated sediments, run-off from stockpiles shall be contained, treated and tested in accordance with the EMP, prior to discharge. Water that does not meet the discharge requirements shall be disposed off-site at a permitted Wastewater Treatment and Disposal Facility, at no extra cost to the Contract.
- .7 Provide pumps and piping to convey collected wastewaters to designated wastewater storage tanks; provide wastewater storage tanks with minimum total live capacity such that effluent quality can be analyzed and accepted prior to discharge.
- .8 Install wastewater storage tanks in locations determined by the Contractor and accepted by the Departmental Representative.
- .9 Support tank[s] on temporary aboveground foundation[s].
- .10 Connect pumps, piping, valves, miscellaneous items, and necessary utilities as required for operation of facilities; and protect tanks, valves, pumps, piping, and miscellaneous items from freezing.
- .11 Do not operate wastewater storage tanks until inspected and accepted by the Departmental Representative.
- .12 Transport and dispose of wastewaters to a Permitted Wastewater Treatment Facility, as identified by the Contractor and accepted by the Departmental Representative.
- .13 Wastewater sample and analysis: The Contractor shall perform sampling and analysis of stored wastewater for disposal purposes prior to removal from the Dunn's Nook Work Site. The Contractor shall determine appropriate methods of

disposal based on results of the analyses. Upon receipt of analytical results, transfer tank contents, without spills or release, to off-site Wastewater Treatment and Disposal facility. Following completion of tank emptying, decontaminate tank interior with steam or high-pressure water wash supplemented by detergent. Dispose of tank decontamination water with tank contents.

- .1 Sanitary wastewater streams shall be disposed of offsite.
- .2 The Contractor shall determine appropriate disposal locations for other wastewater streams, per results of wastewater testing, and per review and acceptance by the Departmental Representative.

1.9 Vehicular Access

- .1 Maintenance and Use:
 - .1 Prevent contamination of access roads. Immediately scrape up debris or material on access roads that is suspected to be contaminated as determined by the Departmental Representative; transport and place into designated area accepted by the Departmental Representative. Clean access roads at least once per shift and more frequently if needed.
 - .2 The Departmental Representative may collect soil samples for chemical analyses from traveling surfaces of constructed and existing access routes prior to, during, and upon completion of the Stage 1 Work. Excavate and dispose of clean soil contaminated by the Contractor's activities at no additional cost.

1.10 Dust and Particulate Control

- .1 Execute Work by methods to minimize raising dust from construction operations.
- .2 Complete dust control activities according to means and methods presented in Section 02 55 10 (Dust Control).
- .3 Implement and maintain dust and particulate control measures at the Dunn's Nook Work Site as determined necessary by the Departmental Representative.
- .4 Prevent dust from spreading to adjacent property sites.
- .5 If the Contractor's dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, stop work. The Contractor must discuss procedures to resolve the problem. Make necessary changes to operations prior to resuming excavation, handling, processing, or other work that may cause release of dusts or particulates.

1.11 Environmental Pollution Control

- .1 Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious toxic substances and pollutants produced by construction operations.
- .2 Be prepared to intercept, clean up, and dispose of spills or releases that may occur whether on land or water. Maintain materials and equipment required for cleanup of spills or releases readily accessible on site.
- .3 Promptly report spills and releases potentially causing damage to environment directly to the Departmental Representative and in accordance with the spill reporting requirements outlined in the EMP.
- .4 The Contractor shall make available the Material Safety Data Sheets (MSDS) at the Dunn's Nook Work Site for the list of known potential pollutants that are being used at the Dunn's Nook Work Site as part of the Work. Contact manufacturer of pollutant if known and ascertain hazards involved, precautions required, and measures used in cleanup or mitigating action.
- .5 Take immediate action using available resources to contain and mitigate effects on environment and persons from spill or release. In addition, comply with spill contingency plan developed as part of the EPP for the Works.
- .6 Provide spill response materials including containers, adsorbent, shovels, and personal protective equipment (PPE). Make spill response materials available at all times in which hazardous materials or wastes are being handled or transported.

1.12 Transportation of Contaminated Materials from the Dunn's Nook Work Site

- .1 All contaminated materials shall be transported from the Dunn's Nook Work Site by road (i.e., transport by barges from site is not permitted, however the Contractor may select to use barges following initial transport of materials from site).
- .2 Refer to Section 01 35 43 (Environmental Procedures) and Section 01 74 19 (Waste Management and Disposal) for information regarding transportation of contaminated materials to an off-Site Treatment and/or Disposal Facility.

1.13 Equipment Decontamination

- .1 Upland equipment decontamination applies to activities that will be completed at the Dunn's Nook Work Site (including the Contractor Staging and Laydown Area).
- .2 Wastewater generated from upland equipment decontamination activities shall be sampled in accordance with the EMP prior to discharge to the marine environment. The Contractor is responsible for meeting performance monitoring criteria and objectives identified in these documents.

**SPECIAL PROJECT PROCEDURES FOR
CONTAMINATED SITES**

- .3 Commence work involving equipment contact with potentially contaminated material only after Equipment Decontamination Facility is operational.
- .4 Decontaminate equipment after working in potentially contaminated work areas and prior to subsequent work or travel on clean areas.
- .5 Perform equipment decontamination on Contractor-constructed equipment decontamination pad to prevent cross-contaminating un-impacted areas.
- .6 At a minimum, perform the following steps during equipment decontamination:
 - .1 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.
 - .2 Pay particular attention to tire treads, equipment tracks, springs, joints, sprockets, and undercarriages.
 - .3 Scrub surfaces with long-handle scrub brushes and cleaning agent.
 - .4 Rinse off and collect cleaning agent.
 - .5 Air dry equipment in clean zone before removing from site or travelling on clean areas.
- .7 Each piece of equipment may be inspected by the Departmental Representative after decontamination and prior to removal from site and/or travel on clean areas. The Departmental Representative will have the right to require that additional decontamination be completed if deemed necessary.
- .8 Take appropriate measures necessary to minimize drift of mist and spray during decontamination including provision of wind screens.
- .9 Collect decontamination wastewaters and sediments which accumulate on equipment decontamination pad. Transfer wastewaters to Contractor-supplied drums, wastewater storage tanks, or on-site treatment facility.
- .10 Dispose of sediments at the Disposal Facilities used for the work.
- .11 Furnish and equip personnel engaged in equipment decontamination with PPE including suitable disposable clothing, respiratory protection, and face shields.

1.14 Dewatering

- .1 Dewater various parts of work to facilitate excavation and construction including, without limitation, work area, excavated sediment and debris and temporary stockpile/dewatering areas at the Dunn's Nook Work Site.
- .2 In assessing the dewatering requirements the Contractor shall review information on site conditions, including, but not limited to, Data Reports provided as Appendix A to these Specifications. The contractor shall also assess tidal information for Esquimalt Harbour and consider potential sequencing of the Works that may be necessary to ensure quality and environmental control of the design construction.

- .3 The Contractor is responsible for meeting the environmental management and performance monitoring criteria and objectives identified in the EMP, Drawings and these Specifications.
- .4 Employ construction methods, plant procedures, and precautions that ensure the Stage 1 Work is stable and free from disturbance to achieve the requirements of the remedial excavation and habitat construction design.
- .5 Dewatering Methods: Includes surface or free water control systems, ditches, diversions, sumps, drains, pipes, pumps and other measures necessary to enable Stage 1 Work to be carried out and to ensure quality control of the design construction. Excavation of materials shall be conducted in dry conditions.
- .6 Provide sufficient and appropriate labour, plant, and equipment necessary to keep Stage 1 Work free of water including standby equipment necessary to ensure continuous operation of dewatering system.
- .7 Test and analyze water generated from dewatering activities and treat to meet required discharge or disposal criteria. The Departmental Representative may also choose to test and analyze water from dewatering activities to confirm Contractor quality control.

1.15 Progress Cleaning

- .1 Maintain cleanliness of work and surrounding the Dunn's Nook Work Site and Contractor Off-Site Off-load Facility to comply with federal, provincial, and local fire and safety laws, ordinances, codes, and regulations.
- .2 Coordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.

1.16 Final Decontamination

- .1 Perform final decontamination of construction facilities, equipment, and materials which may have come in contact with potentially contaminated materials prior to removal from the Dunn's Nook Work Site.
- .2 Perform decontamination as specified to satisfaction of the Departmental Representative. The Departmental Representative will direct the Contractor to perform additional decontamination if required.

1.17 Removal and Disposal

- .1 Remove surplus materials and temporary facilities from the Dunn's Nook Work Site.
- .2 Dispose of non-contaminated waste materials, litter, debris, and rubbish off site.
- .3 Do not burn or bury rubbish and waste materials at the Dunn's Nook Work Site.

- .4 Do not dispose of volatile or hazardous wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
- .5 Do not discharge wastes into streams or waterways.
- .6 Dispose of following materials at appropriate off-site facility identified by the Contractor and accepted by the Departmental Representative:
 - .1 Debris including excess construction material.
 - .2 Non-contaminated litter and rubbish.
 - .3 Disposable PPE worn during final cleaning.
 - .4 Wastewater removed from wastewater storage tank.
 - .5 Wastewater generated from final decontamination operations including wastewater storage tank cleaning.
- .7 Dispose of materials as directed by the Departmental Representative.
- .8 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

1.18 Record Keeping

- .1 Maintain bills of lading for minimum of 365 days from date of shipment or longer period required by applicable law or regulation.

1.19 Environmental Management Plan

- .1 An EMP has been prepared for this Contract and is provided in Appendix B as part of these Contract documents. The Contractor shall be responsible for reviewing and understanding the EMP, and conducting all construction activities in accordance with the requirements of the EMP and these Specifications. The Contractor shall use the EMP as a reference during development of the EPP.

1.20 Stockpiling Facility

- .1 Provide, maintain, and operate storage/stockpiling facilities at the Contractor Off-Site Off-load Facility as required.
- .2 Install liner below proposed stockpile locations at the Contractor Off-Site Off-load Facility to prevent contact between stockpile material and ground. Equip facility with tarps capable of covering stockpiled material until material is ready for upland transport to the Disposal Facility.

1.21 Water Control at Dunn's Nook Work Site

- .1 This section applies to over-land water control (i.e., stormwater and surface water control) for management of construction water at the Dunn's Nook Work Site.
- .2 Prepare, as part of the EPP, a section outlining the Contractor plan for stormwater pollution prevention. This shall discuss the following:
 - .1 Protect the Dunn's Nook Work Site and Contractor Staging and Laydown Area from puddling or running water. Grade areas to drain. Provide water barriers as necessary to protect the areas from soil erosion.
 - .2 Prevent surface water runoff from leaving work areas.
 - .3 Do not discharge decontaminated water, or surface water runoff, or groundwater that may have come in contact with potentially contaminated material, off site or to municipal sewers.
 - .4 Direct surface waters that have not contacted potentially contaminated materials to existing surface drainage systems.
 - .5 Control surface drainage including ensuring that gutters are kept open, water is not directed 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.
 - .6 Dispose of water in manner not injurious to public health or safety, to property, or to any part of work completed or under construction.
 - .7 Provide, operate, and maintain necessary equipment appropriately sized to keep excavations, staging pads, and other work areas free from water.
 - .8 Contain water from dewatering and decontamination facilities. Transfer potentially contaminated dewatering and decontamination waters to wastewater storage tanks separate from wastewater from personnel hygiene/decontamination facility.
 - .9 Have on hand sufficient pumping equipment, machinery, and tankage in good working condition for ordinary emergencies, including power outage, and competent workers for operation of pumping equipment.
 - .10 Contain and collect wastewaters and transfer such collected wastewaters to Contractor-supplied drums, wastewater storage tanks, or Dunn's Nook Work Site treatment facility.

1.22 Surface and Tidal Water Control

- .1 In assessing the dewatering requirements the Contractor shall review information on site conditions, including, but not limited to, Data Reports presented in Appendix A to these Specifications. The contractor shall also assess tidal information for Esquimalt Harbour and consider potential sequencing of the Stage 1 Works that may be necessary to ensure quality and environmental control of the design construction.
- .2 The Contractor shall plug each of the existing culverts with a temporary tide gate or similar device to prevent surface water ingress and passage of marine life from Esquimalt Harbour into Dunn's Nook through the culverts. Temporary or permanent alteration of the existing culverts shall not be permitted and no bolting or fixing to the concrete facing of the culverts that has the potential to cause damage shall be permitted.
- .3 The Contractor shall be responsible for the supply, installation, maintenance and removal of water management and control measures related to ingress of water into Dunn's Nook during construction. These measures may include, but are not limited to, constructing a temporary hydraulic barrier, excavating a sump and operating a pumping system, or other methods to achieve the design requirements of the remedial excavation and habitat construction. The Contractor is responsible for implementing water control measures to facilitate the Stage 1 Work outlined in the Contract documents.
- .4 If a sump is to be installed to facilitate water management, the sump must be offset a minimum distance of ten (10) metres from the toe of the embankments surrounding the basin, with a maximum sump depth of one and a half (1.5) metres. It is the responsibility of the Contractor to ensure that installation of water management/control measures do not result in undermining of adjacent slopes or infrastructure.

1.23 Erosion and Sediment Control

- .1 The Contractor shall prepare and submit an Erosion and Sedimentation Control Plan and submit to the Departmental Representative as part of the EPP. The Plan shall address potential erosion and sediment control measures for implementation at the Work Site and discuss the following as applicable:
 - .1 Plan to execute construction by methods to control surface drainage from cuts and fills, borrow and waste disposal areas, stockpiles, staging areas, and other work areas. Prevent erosion and sedimentation.
 - .2 Minimize amount of bare soil exposed at one time. Stabilize disturbed soils as quickly as practical. Strip vegetation, regrade, or otherwise develop to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems, and water courses, and repair damage caused by soil erosion and sedimentation as directed by the Departmental Representative.

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- .3 Provide and maintain temporary measures which may include, concrete blocks, silt fences, hay or straw bales, geotextiles, drains, berms, terracing, riprap, temporary drainage piping, dikes, and other construction required to prevent erosion and migration of silt, mud, sediment, and other debris off site or to other areas of site where damage might result, or that might otherwise be required by laws and regulations. Make sediment control measures available during construction.
- .4 Hay or Straw Bale: Wire-bound or string-tied; securely anchored by at least two (2) stakes or rebars driven through bale 300 millimetres (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.
- .5 Silt Fence: Assembled, ready to install unit consisting of geotextile attached to drivable posts.
- .6 Geotextile: Uniform in texture and appearance, having no defects, flaws, or tears that would affect its physical properties; and containing sufficient ultraviolet ray inhibitor and stabilizers to provide minimum 2-year service life from outdoor exposure.
- .7 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.
- .8 Posts: Sharpened wood, approximately 50 mm square, protruding below bottom of geotextile to allow minimum 450 mm embedment; post spacing 2.4 metre (m) maximum. Securely fasten each post to geotextile and net backing using suitable staples.
- .9 Plan construction procedures to avoid damage to work or equipment encroachment onto water bodies or drainage ditch banks. In event of damage, promptly take action to mitigate effects. Restore affected bank or water body to existing condition.
- .10 Installation:
 - .1 Construct temporary erosion control items as indicated. Actual alignment and/or location of various items as directed by the Departmental Representative.
 - .2 Do not construct bale barriers and silt fence in flowing streams or in swales.
 - .3 Check erosion and sediment control measures weekly and after each rainfall event; during prolonged rainfall check daily.
 - .4 Bales and/or silt fence may be removed at beginning of work day; replace at end of work day.

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- .5 Whenever sedimentation is caused by stripping vegetation, regrading, or other development, remove it from adjoining surfaces, drainage systems, and watercourses, and repair damage as quickly as possible.
- .6 Prior to or during construction, the Departmental Representative may require installation or construction of improvements to prevent or correct temporary conditions on site. Temporary improvements must remain in place and in operation as necessary or until otherwise directed by the Departmental Representative.
- .7 Repair damaged bales, end runs, and undercutting beneath bales.
- .8 Unless otherwise directed by the Departmental Representative, remove temporary erosion and sediment control devices upon completion of the Stage 1 Work. Spread accumulated sediments to form a suitable surface for seeding or dispose of, and shape area to permit natural drainage to satisfaction of the Departmental Representative. Materials once removed become property of the Contractor.
- .11 Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
- .12 Do not disturb existing embankments or embankment protection.
- .13 Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- .14 If soil and debris from site accumulate in low areas, storm sewers, roadways, gutters, ditches, or other areas where, in the Departmental Representative's determination, it is undesirable, remove accumulation and restore area to original condition.

1.24 Aquatic Water Quality Control

- .1 Prepare, as part of the EPP, an aquatic water quality control section, which describes how the Contractor will limit and control the dispersion of suspended solids, including management of leachate and run-off from temporary processing of sediments/soils that may occur within the Contractor Staging and Laydown Area, including the Sediment Processing Area. The water quality control section will outline measures to control erosion at the point of treated water discharge. The water quality control section will also describe how the Contractor shall comply with all permit requirements related to maintenance of water quality criteria during construction, including completion of water quality monitoring activities, as required by the EMP.

- .2 Silt Curtain Control. Silt curtain fabrication shall not begin until details regarding the silt curtain design and control have been provided as a section in the EPP and until the EPP has been reviewed and accepted by the Departmental Representative. At a minimum, the silt curtain control section shall contain the following information:
 - .1 The type and make of all materials and parts proposed for use as part of the silt curtain system.
 - .2 Silt curtain anchoring plan.
 - .3 Detailed construction schedule that identifies timing for installation of silt curtain.
 - .4 Detailed drawing showing proposed location for silt curtain installation and operation.
 - .5 Methods and procedures for Contractor inspection, maintenance, and repair of silt curtain system during construction.

2. PART 2 – PRODUCTS

2.1 Silt Curtain

- .1 The silt curtain shall be used to contain turbidity that may be generated in Esquimalt Harbour during completion of the construction activities, including potential discharge of treated water. The silt curtain shall be furnished by the Contractor, and will surround the in-water activities specified in Part 3 – Execution of this Specification section. The curtain shall be supported by floats at the top and weighted at the bottom. The curtain shall extend to the mud line, where practicable. It shall be installed, managed, and moved such that minimal dispersion of suspended sediment in the water column occurs.
- .2 The Contractor shall be responsible for design, procurement, installation, operation, inspection, maintenance, and repair of all silt curtains required for the Stage 1 Work.

2.2 Hydraulic Barrier

- .1 The Contractor should consider the use a hydraulic barrier to manage ingress of surface water along the eastern edge of Dunn's Nook, adjacent to Wilfert Road and the parking lot. The Contractor is responsible for selection of appropriate water control and management methods to complete the Stage 1 Work outlined in the Contract documents. If the Contractor decides to use a hydraulic barrier, it shall be of an appropriate hydraulic conductivity to reduce water ingress to a rate that can be controlled through operation of a pumping system.

- .2 The Contractor shall be responsible for design, procurement, installation, operation, inspection, maintenance, and repair of any hydraulic barrier used to management water ingress for the Stage 1 Work.
- .3 In assessing the dewatering requirements the Contractor shall review information on site conditions, including, but not limited to, Data Reports provided as Appendix A to these Specifications.

3. PART 3 – EXECUTION

3.1 Notification of Non-Compliance

- .1 The Departmental Representative will notify the Contractor, in writing, of observed noncompliance with federal, provincial, or municipal environmental laws or regulations, permits, and other elements of the Contractor's EPP. Notwithstanding this notification process, the Contractor shall be responsible for conducting all construction activities in a manner compliant with these regulations.
- .2 The Contractor shall inform the Departmental Representative of proposed corrective action after receipt of such notice, and take such action for approval by the Departmental Representative.
- .3 The Departmental Representative will issue a stop work order until satisfactory corrective action has been taken.
- .4 No time extensions shall be granted or equitable adjustments allowed to the Contractor for such suspensions.

3.2 Subcontractors

- .1 Compliance with this Section by subcontractors shall be responsibility of the Contractor.

3.3 Implementation

- .1 Coordination
 - .1 At the Pre-Construction Meeting, the Departmental Representative and Contractor shall discuss the Contractor's operations to develop mutual understandings relative to the administration of the EMP and EPP.
- .2 Supervision
 - .1 During the Work, all activities, including those of subcontractors, shall be supervised by the Contractor to assure compliance with the intent and details of the EPP.
 - .2 The Contractor shall discuss environmental compliance at the Weekly Progress Meeting for itself and its subcontractors to assure that all personnel working at the Dunn's Nook Work Site are familiar with the Environmental Protection provisions.

- .3 All equipment and materials for Environmental Protection shall be inspected every week, at a minimum, to ensure that they are in proper order, being applied correctly, and have not deteriorated.
- .4 The Contractor shall provide to the Departmental Representative a written inspection report as part of the Weekly Construction Report documenting the condition of the equipment and materials.

3.4 Silt Curtain Implementation

- .1 The silt curtain shall be used during completion of excavation activities and during discharge of water that is pumped from Dunn's Nook, via a treatment system, as part of water management and control measures. The silt curtain may also be required in the event that increased turbidity as a result of construction activities is observed in Esquimalt Harbour.
- .2 Provide daily inspection of silt curtain system to ensure it is properly installed and effectively containing suspended sediment.
- .3 Silt curtain installation and anchoring design shall accommodate the potential need to relocate Contractor equipment if so directed by the Departmental Representative. CFB Esquimalt, Colwood Property operational needs shall take precedence over Contractor work.
- .4 The silt curtain shall not be opened until suspended sediment (turbidity) within the silt curtained area is observed to have reduced to site ambient conditions, unless approved by the Departmental Representative.
- .5 Should Contractor inspection or the Departmental Representative environmental monitoring indicate that the silt curtain is not effectively containing suspended sediment, is damaged, or is improperly installed, the Contractor shall take immediate action to repair the silt curtain, adjust use of the silt curtain, or any additional actions necessary to comply with water quality criteria and permit conditions at no additional cost to the Departmental Representative.

3.5 Protection of Aquatic Water Resources

- .1 General
 - .1 Compliance with conditions of any permits and clearances obtained for the Work is the Contractor's responsibility.
 - .2 Water collected from the upland construction areas shall be pumped or drained to a supplemental water storage and water treatment plant to reduce total suspended solids (TSS). A treated water sample shall be collected by the Contractor for laboratory analysis to confirm the performance of the system to produce water of sufficient quality for discharge in accordance with the requirements outlined in the EMP. The Contractor shall make system changes if samples do not meet discharge requirements.

**SPECIAL PROJECT PROCEDURES FOR
CONTAMINATED SITES**

- .3 The Contractor is responsible for ensuring that the water discharge meets the requirements outlined in the EMP, at no additional cost to the Contract. Turbidity/TSS monitoring of the discharge will periodically be undertaken by an Environmental Monitor employed by the Departmental Representative to confirm that discharge requirements are being met.
- .4 The water treatment plant shall be maintained in operation until construction activities (with the exception of planting) have been completed.
- .5 Upon completion of the habitat construction, the Contractor shall remove the water storage and water treatment plant from the Dunn's Nook Work Site.
- .6 Discharge of effluent from the Contractor's construction activities shall meet all water quality criteria per the EMP and other permit conditions as appropriate.
- .2 Disposal
 - .1 Except as provided in the Contract, disposal of any wastes, effluents, trash, grease, chemicals, or other contaminants in water bodies shall not be allowed.
 - .2 If any waste material is dumped in unauthorized areas, the material shall be removed and the area restored to its pre-project condition.

3.6 Aquatic Water Quality Monitoring

- .1 The Departmental Representative Environmental Monitor will perform water quality monitoring, consistent with the EMP.
- .2 The Contractor shall familiarize itself with water quality requirements, as they pertain to this Contract.
- .3 In no event does the monitoring undertaken by the Departmental Representative Environmental Monitor alleviate the Contractor's responsibility to monitor its own operations to ensure that the Contractor is meeting water quality performance objectives.
- .4 Comply with all permits and approvals and the requirements of the EMP in conducting the Work. For site-specific water quality requirements refer to the EMP.
- .5 The Contractor shall provide safe access to the Environmental Monitor to conduct water quality monitoring.
- .6 Any exceedance of the water quality performance criteria may result in a requirement to stop work or modify work activities at the discretion of the Departmental Representative.

3.7 Protection of Fish and Wildlife

- .1 The Fisheries Act Authorization for the Project provides a Section 32 authorization for the destruction of benthic invertebrates related to the excavation of sediments. This authorization does not permit the killing of fish.
- .2 A fish salvage will be undertaken by the Departmental Representative Environmental Monitor once the culverts have been sealed/blocked by the Contractor to prevent ingress of water through the culverts and when water control measures have been installed. The Contractor shall allow time in the schedule to accommodate this salvage – fish salvage operation is assumed to take one (1) day.
- .3 All work shall be performed and all steps taken to prevent interference or disturbance to fish and wildlife.
- .4 Water flows or habitat outside the Dunn's Nook Work Site that are critical to fish or wildlife shall not be altered or disturbed.
- .5 The Contractor shall immediately cease work if fish kill or distressed fish are observed, and immediately notify the Departmental Representative.

3.8 Maintenance or Pollution Control Facilities

- .1 The Contractor shall maintain all constructed facilities and portable pollution control devices for the duration of the Contract or for that length of time construction activities create the particular pollutant.

3.9 Training of Contractor Personnel

- .1 Contractor personnel shall be trained in environmental protection and pollution control as required by applicable federal, provincial, and local requirements.
- .2 The Contractor shall conduct Environmental Protection/Pollution control meetings for all Contractor personnel.
- .3 Prior to the start of the Work the Departmental Representative Environmental Monitor will provide a pre-work orientation to Contractor staff to provide an overview of the EMP and expectations for environmental management during the Works.
- .4 The training and meeting agenda shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and maintenance of facilities and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed.

END OF SECTION

1. PART 1 – GENERAL

1.1 References

- .1 Government of Canada:
 - .1 Canada Labour Code – Part II
 - .2 Canada Occupational Health and Safety Regulations.
- .2 National Building Code of Canada (NBC):
 - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .3 Canadian Standards Association (CSA):
 - .1 CSA Z797-2009, Code of Practice for Access Scaffold.
 - .2 CSA S269.1-1975 (R2003), Falsework for Construction Purposes.
 - .3 CSA S350-M1980 (R2003), Code of Practice for safety in Demolition of Structures.
- .4 Fire Protection Engineering Services, HRSDC:
 - .1 FCC No. 301, Standard for Construction Operations.
- .5 American National Standards Institute (ANSI):
 - .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
- .6 Province of British Columbia:
 - .1 Workers Compensation Act Part 3 Occupational Health and Safety.
 - .2 Occupational Health and Safety Regulation.

1.2 Related Sections

- .1 All sections of these Contract documents shall apply to requirements for submittals associated with the work. Contractor shall review and be familiar with the structure of submittals required for this Contract.

1.3 Workers' Compensation Board Coverage

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .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 PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

1.5 Submittals

- .1 Submit to the Departmental Representative submittals listed for review in accordance with Section 01 33 00 (Submittal Procedures).
- .2 Work affected by the submittal shall not proceed until the review is complete.
- .3 Submit the following:
 - .1 Company Safety Manual and site-specific project Health and Safety Plan.
 - .2 Copies of reports or directions issued by federal and provincial health and safety inspectors.
 - .3 Copies of incident and accident reports.
 - .4 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .5 Contingency and emergency procedures.
- .4 The Health and Safety Plan must include a site specific hazard assessment.
- .5 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within five (5) working days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative for review upon request.
- .6 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.
- .7 Submission of the Contractor's Company Safety Manual and site-specific project Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
 - .1 Be construed to imply acceptance by Departmental Representative.

- .2 Be interpreted as a warranty of being complete, accurate, and legislatively compliant.
- .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.6 Responsibility

- .1 Assume responsibility as the prime Contractor for work under this Contract.
- .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.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal bylaws and rules at the Work Site.

1.7 Health and Safety Coordinator

- .1 The Contractor shall designate a Health and Safety Coordinator (and designee) in its Health and Safety Plan. The Health and Safety Coordinator must:
 - .1 Be responsible for completing all Contractor and subcontractor(s) workers' health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the site to perform work.
 - .2 Be responsible for implementing, enforcing, and monitoring the Contractor's compliance with the site-specific project Health and Safety Plan.
 - .3 Have site related working experience specific to the general activities being undertaken, including handling of contaminated sediments/soils.
 - .4 Be on site during execution of work. If the Contractor's work hours and schedule necessitate use of additional personnel to support the Health and Safety Coordinator, identify those personnel in the Health and Safety Plan.

1.8 General Conditions

- .1 Provide safety barricades and lights around the Work Site and Storage and Laydown Area (as necessary) to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.

- .2 Implement traffic management and control during the Works, to ensure that the Contractor's activities are undertaken safely and to provide protection to other users of the Colwood property. Note that one lane of traffic must be maintained across Wilfert Road at all times.
- .3 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the Work Site and the Storage and Laydown Area.
 - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.
 - .2 Secure site(s) at night time as deemed necessary to protect site against entry.
- .4 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect other users of the Colwood property.
- .5 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, and open edges of floors and roofs. Provide as required by governing authorities.
- .6 Erect temporary enclosure around Contractor's Staging and Laydown Area. Provide access gates as required. Maintain enclosure in good repair.
- .7 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.
- .8 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.9 Work Site and Contractor Staging and Laydown Area

- .1 Work at site may involve, but is not limited to, contact with:
 - .1 DND, PWGSC and Consultant staff.
 - .2 Other Contractors that may be operating at the Colwood property.
 - .3 PCB, metals and hydrocarbon contaminated sediments/soils.
 - .4 Work over, adjacent to and within water.
 - .5 Work at heights.
 - .6 Unpredictable weather conditions.
 - .7 Threat of tsunami and earthquakes.

1.10 Regulatory Requirements

- .1 Comply with specified codes, acts, by-laws, standards, and regulations to ensure safe operations at the Work Site and the Contractor Staging and Laydown Area.

- .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.

1.11 Work Permits

- .1 Obtain specialty trade permit(s) related to project before start of work.

1.12 Filing of Notice

- .1 The Contractor is to complete and submit a Notice of Project before work commences.
- .2 Provide copies of all notices to the Departmental Representative.

1.13 Health and Safety Plan

- .1 The site-specific project Health and Safety Plan shall be prepared by a certified Industrial Hygienist and submitted to the Departmental Representative within fifteen (15) working days following Contract award.
- .2 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.
- .3 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - .1 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.
 - .5 Job-specific safe work procedures.
 - .6 Inspection policy and procedures.
 - .7 Incident reporting and investigation policy and procedures.
 - .8 Occupational Health and Safety Committee/Representative procedures.
 - .9 Occupational Health and Safety meetings.
 - .10 Occupational Health and Safety communications and recordkeeping procedures.

- .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
- .3 List hazardous materials to be brought on site as required by work.
- .4 Indicate engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
- .5 Identify personal protective equipment (PPE) to be used by workers.
- .6 Identify personnel and alternates responsible for site safety and health.
- .7 Identify personnel training requirements and training plan, including site orientation for new workers.
- .4 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.
- .5 Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
- .6 Departmental Representative's review: the review of Health and Safety Plan by Public Works and Government Services Canada (PWGSC) shall not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of Contract documents.

1.14 Emergency Procedures

- .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 Representative and other staff as required.
- .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 that may be affected if the risk extends beyond the workplace.
- .6 Notify Departmental Representative and site staff.
- .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 or underpier work.
 - .5 Structures demolition.
 - .6 Work on, over, under and adjacent to water.
 - .7 Workplaces where there are persons who require physical assistance to be moved.
- .4 At the DND Colwood property, follow and comply with emergency exit routes to provide quick and unimpeded exit.
- .5 At least once, emergency drills must be held to ensure awareness and effectiveness of emergency exit routes and procedures, and a record of the drills must be kept.
- .6 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

1.15 Hazardous Products

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labeling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- .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 (Submittal Procedures).
 - .2 In conjunction with the Departmental Representative, schedule to carry out work during "off hours" when there are fewer users present.
 - .3 Provide adequate means of ventilation as required.

1.16 PCB Removals

- .1 Mercury-containing fluorescent tubes and ballasts, which contain polychlorinated biphenyls (PCBs), are classified as hazardous waste.
- .2 Remove, handle, transport and dispose of in accordance with applicable provincial regulations.

1.17 Electrical Safety Requirements

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
 - .1 Before undertaking any work, coordinate required energizing and de-energizing of new and existing circuits with Departmental Representative.
 - .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

1.18 Electrical Lockout

- .1 Coordinate with Departmental Representative to develop, implement and enforce procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.
- .2 Prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request authorization form. Have procedures available for review upon request by the Departmental Representative.
- .3 Keep the documents and lockout tags at the site and list in a logbook for the full duration of the Contract. Upon request, make such data available for viewing by Departmental Representative or by any authorized safety representative.

1.19 Overloading

- .1 Ensure no part of work is subjected to a load that will endanger its safety or will cause permanent deformation.

1.20 Falsework

- .1 Design and construct falsework in accordance with CSA S269.1-1975 (R2003) (Falsework for Construction Purposes).

1.21 Scaffolding

- .1 Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CSA Z797-2009 (Code of Practice for Access Scaffold) and B.C. Occupational Health and Safety Regulations.

1.22 Confined Spaces and Restricted Access Spaces

- .1 Carry out work in confined spaces in accordance with provincial regulations.
- .2 Coordinate access to "restricted areas" with the Departmental Representative.

1.23 Powder-Actuated Devices

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

1.24 Fire Safety and Hot Work

- .1 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.
- .2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.

1.25 Fire Safety Requirements

- .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 on a daily basis.
- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.26 Fire Protection and Alarm System

- .1 Fire protection and alarm systems shall not be:
 - .1 Obstructed.
 - .2 Shut off.
 - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.
- .3 Be responsible/liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

1.27 Unforeseen Hazards

- .1 Should any unforeseen or peculiar safety-related factor, hazard or condition (including identification of unexploded ordinance) become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

1.28 Posted Documents

- .1 Post legible versions of the following documents on site:
 - .1 Site-specific project Health and Safety Plan.
 - .2 Sequence of work.
 - .3 Emergency procedures.
 - .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
 - .5 Notice of Project, per WorkSafeBC requirements.
 - .6 Floor plans or site plans.
 - .7 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the site for review by employees and workers.
 - .8 Workplace Hazardous Materials Information System (WHMIS) documents.
 - .9 Material Safety Data Sheets (MSDS).
 - .10 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .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.
- .3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as accepted by the Departmental Representative.

1.29 Meetings and Safety Orientation

- .1 Attend Pre-Construction Meeting and all subsequent meetings called by the Departmental Representative.
- .2 All personnel employed by Contractor and his subcontractors shall attend a Contractor provided safety orientation presentation prior to starting work.

- .3 Ensure that all Contractor personnel present on site attend a daily health and safety “tailgate” or “toolbox” meeting, which will include:
 - .1 Sign-in of all attendees.
 - .2 Planned work activities and environmental considerations for that shift.
 - .3 Hazards associated with these work activities, including environmental hazards (e.g., potential for hypothermia, heat exhaustion, or heat stroke).
 - .4 Appropriate job-specific safe work procedures.
 - .5 Required personal protective equipment (PPE).
 - .6 Appropriate emergency procedures.
- .4 Retain records of all health and safety meetings conducted during completion of the work, and retain as corporate records for a minimum of seven (7) years after work is completed.

1.30 Utility Clearance

- .1 The Contractor is solely responsible for utility clearance.
- .2 The Contractor shall not rely upon Drawings or other information provided with utility locations.

1.31 Correction of Non-Compliance

- .1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Departmental Representative may issue a “stop work order” if non-compliance of health and safety regulations is not corrected immediately or within posted time. The Contractor/subcontractors will be responsible for any costs arising from such a “stop work order”.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

ENVIRONMENTAL PROCEDURES

Part 1 GENERAL

1.1 Description

- .1 This section describes environmental procedures that are required for the Contract. The contractor shall be responsible for adhering to these special procedures when completing all work under this Contract.
- .2 The Contractor shall review and understand the EMP prior to submission of Tender. The EMP is included as Appendix B of these Contract Documents.
- .3 Environmental degradation arising from construction activities shall be prevented, abated, controlled, and minimized by complying with all applicable federal, provincial, and local laws and regulations concerning environmental pollution control and abatement, as well as the specific requirements in the project permits. The Contractor shall comply with all permit conditions. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor shall comply with provincial laws and municipal by-laws and rules at the Dunn's Nook Work Site.
- .4 The Contractor is responsible for environmental protection during all construction activities at all locations it performs Work. Work locations may include, but are not limited to, the Dunn's Nook Work Site, off-site facilities used by the Contractor, during any potential project related barge transport over water, and land-based transportation of excavated material. This section primarily addresses work conducted at the Dunn's Nook Work Site, but the Contractor is responsible for complying with environmental protection regulations, applicable permits and municipal bylaws, at all locations that are used for the Work.
- .5 A fish salvage is required to be conducted prior to construction activities within the Dunn's Nook basin. The salvage will be undertaken by the Departmental Representative once the Contractor has blocked the culverts to prevent ingress of water from the harbour during construction and passage of marine life. The Contractor shall provide access and time in the schedule, approximately one (1) day, for the Departmental Representative to conduct the salvage.
- .6 This section assumes that excavated sediment and debris will be dewatered at Dunn's Nook Work Site and transported from the Dunn's Nook Work Site via truck for disposal at an off-site permitted Treatment Facility and/or Disposal Facility. Off-Site facilities used by the Contractor for potential loading/off-loading for barge transportation shall be operated and maintained in accordance with environmental permits and regulations, as applicable.

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1.2 Measurement and Payment Procedures

- .1 Except for Siltation Control and Water Treatment, and Water Management and Control, no separate payment will be made for environmental procedures. The Contactor shall refer to the Unit Price Table for details regarding Measurement and Payment for the Contract work. Activities associated with environmental procedures shall be considered incidental to the Work.
- .2 Payment for Siltation Control (including silt curtains) and Water Treatment shall be by Lump Sum and will be paid for under the allowance Tender Item for SILTATION CONTROL and WATER TREATMENT.
- .3 Payment for Water Management and Control (including dewatering) for the duration of the Stage 1 Work, shall be by Lump Sum and will be paid for under the allowance Tender Item for WATER MANAGEMENT and CONTROL.

1.3 References

- .1 Definitions:
 - .1 Refer to Section 01 11 55 (General Instructions) for definitions related to this Contract.

1.4 Submittals

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures, prior to commencing construction activities or delivery of materials to the Dunn's Nook Work Site.
- .2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan (EPP) for review and acceptance by Departmental Representative within fifteen (15) working days following Notice of Contract Award. The EPP shall present the procedures by which the Contractor shall establish and maintain quality control for environmental protection of all items of the work, and the means and methods that the Contractor shall use to comply with the EMP and all required permit conditions. The EPP shall address all Works under the Contract. The EPP shall present a comprehensive overview of known or potential environmental issues.
- .3 Address topics at level of detail commensurate with environmental issue and required construction task[s].
- .4 Address all topics that the EMP requires the Contractor to discuss in the EPP.
- .5 See Section 01 35 13.43 – Special Project Procedures for Contaminated Sites for Work submittal requirements to be included in the EPP.

ENVIRONMENTAL PROCEDURES

- .6 At a minimum, the EPP shall include the following:
 - .1 Name[s] of person[s] responsible for ensuring adherence to EPP.
 - .2 Name[s] and qualifications of person[s] responsible for training site personnel.
 - .3 Descriptions of Environmental Protection personnel training program.
 - .4 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .5 Silt curtain control plan including the type and make of all materials and parts proposed for use as part of the silt curtain system, detailed fabrication drawings, including manufacturer sketches as necessary, showing layout of silt curtain system, dimensions, and depictions of how system will interact with Contractor's equipment and silt curtain anchoring plan.
 - .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
 - .7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
 - .8 Work area plan showing proposed activity in each portion of area 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.
 - .9 Spill control plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
 - .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
 - .12 Environmental Pollution Prevention and Control Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
 - .13 Wastewater management plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived

ENVIRONMENTAL PROCEDURES

from construction activities, such as clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

- .14 Identify measures for stormwater pollution prevention.
- .15 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

1.5 Environmental Responsibility

- .1 The Contractor shall demonstrate in the performance of the work that it is environmentally responsible by complying with environmental legislation, regulations, municipal bylaws and authorizations; following all Departmental Representative instructions and policies, practices, and procedures established by the Departmental Representative to the contractor from time to time; being observant for, and immediately notifying the Departmental Representative of any environmental problems that develop at the Dunn's Nook Work Site or at off-site locations used by the Contractor, where the problem relates to the execution of the Works; and taking all reasonable and necessary measures in the performance of the work to avoid causing negative impacts to the environment. Where negative impacts occur, the Contractor must immediately advise the Departmental Representative and shall be solely liable to undertake all reasonable and necessary measures to minimize the effect of such negative impacts.
- .2 Maintain key pollution control systems in working condition throughout the project and undertake all Works such that there are no unauthorized discharges of liquids or solids to the marine environment, or of gas to the atmosphere.
- .3 Maintain a neat Work area free of unnecessary debris, tools, equipment, or materials; dispose of sewage, refuse, and chemical wastes in compliance with the BC Environmental Management Act; and remove all tools, equipment, supplies, and wastes from the Dunn's Nook Work Site upon completion of the work.
- .4 Maintain all equipment and machinery in good working order and free of leaks or excess oil, grease, and debris. Ensure that appropriately equipped spill kits are available on all equipment at the Dunn's Nook Work Site and Contractor Staging and Laydown Area and that workers and supervisory staff is knowledgeable with the provisions of the EMP and the EPP and are adequately trained to implement the mitigation measures.

1.6 Fires

- .1 Fires and burning of rubbish are not permitted.

ENVIRONMENTAL PROCEDURES

1.7 Drainage

- .1 Provide Erosion and Sediment Control Plan as part of the EPP identifying type and location of erosion and sediment controls provided. Ensure plan includes monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, federal, provincial, and municipal laws and regulations.
- .2 As part of the EPP identify measures for stormwater pollution prevention.
- .3 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .4 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.8 Site Clearing and Plant Protection

- .1 Protect trees and plants on adjacent properties. No removal of vegetation in the riparian zone is permitted, unless agreed in writing by the Departmental Representative.
- .2 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.

1.9 Pollution Control

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.10 Historical/Archaeological Control

- .1 Archaeological resources are present within and adjacent to the Work Site.
- .2 The Contractor shall demarcate recorded archaeological sites, as identified in the EMP, prior to the Work.

ENVIRONMENTAL PROCEDURES

- .3 The Departmental Representative will retain the services of an Archaeological Monitor who will conduct archaeological monitoring of the Contractor operations during completion of Works in areas of the Work Site as identified in the Archaeological Monitoring Plan, presented in the EMP.
- .4 The Contractor shall provide safe access to the Work site to facilitate monitoring by the Archaeological Monitor. If archaeological remains or items of historical or scientific interest are identified during the monitoring, the Contractor may be instructed to temporarily cease Work in the area and requested to provide equipment and/or labour to support the investigation of remains and/or items identified.
- .5 Contractor's key field personnel shall attend a historical/archaeological orientation that will be provided by the Departmental Representative prior to the Stage 1 construction activities. This orientation takes approximately one (1) hour.
- .6 Protect historical, archaeological and biological resources known to be on the Work Site.
- .7 During work, Contractor field personnel shall observe for evidence of historical, archaeological, cultural and biological resources. Should the Contractor encounter, or suspect that he has encountered, such resources, the Contractor shall immediately cease work and notify the Departmental Representative.
- .8 Archaeological material, if found at the Work Site remains the responsibility of the Departmental Representative and shall not be removed.
- .9 Management of archaeological materials shall be co-ordinated through the Departmental Representative.

1.11 Notification

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with federal, provincial or municipal environmental laws or regulations, permits, and other elements of Contractor's EPP.
- .2 Contractor: after receipt of such notice, shall inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
 - .1 Do not take action until after receipt of written approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.

ENVIRONMENTAL PROCEDURES

- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 Cleaning

- .1 Clean in accordance with Section 01 35 13.43 Special Procedures for Contaminated Sites.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 Waste Management and Disposal.
- .3 Do not bury rubbish and waste materials on the Dunn's Nook Work Site.
- .4 Do not dispose of waste or volatile materials, such as mineral spirits, oil, or paint thinner into waterways, storm sewers, or sanitary sewers.
- .5 The Contractor is responsible for storing, separating, handling, transporting, and disposing of all waste materials in accordance with provincial, federal, and local and municipal regulations and requirements, and at appropriate Disposal Facilities or transfer stations.
- .6 Disposal/recycling of other waste generated during the project shall be done in compliance with British Columbia Waste Regulations and the facilities used will need to be reviewed by the Departmental Representative.

END OF SECTION

ENVIRONMENTAL PROCEDURES

- .6 Disposal/recycling of other waste generated during the project shall be done in compliance with British Columbia Waste Regulations and the facilities used will need to be reviewed by the Departmental Representative.

END OF SECTION

QUALITY CONTROL

Part 1 GENERAL

1.1 Description

- .1 This section presents Contractor requirements for quality control, including coordination with material suppliers, testing agencies, and other entities that may be employed by the Departmental Representative during completion of the Works. The intent of this section is to require the Contractor to establish a necessary level of control that will provide sufficient information to assure both the Contractor and the Departmental Representative that the Specification requirements have been met.
- .2 The Contractor shall establish, provide, and maintain a Quality Control (QC) Plan as specified herein, detailing the methods and procedures that will be taken to assure that all materials and completed construction elements conform to the Drawings, Specifications, and other requirements of the Work. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the Specifications, it is the responsibility of the Contractor to ensure that construction and construction quality control are accomplished in accordance with the stated purpose and Specifications as described herein.
- .3 The Contractor shall be prepared to discuss and present, at the Pre-Construction Meeting, its understanding of the quality control requirements. The Contractor shall not begin any construction until the QC Plan has been reviewed and accepted by the Departmental Representative.

1.2 Measurement and Payment

- .1 No separate payment will be made for quality control. The Contractor shall refer to the Unit Price Table for details regarding measurement and payment for the Contract Work.

1.3 Related Sections

- .1 01 11 55 – General Instructions.
- .2 01 35 13.43 – Special Project Procedures for Contaminated Sites
- .3 01 35 43 – Environmental Procedures
- .4 02 21 13 – Surveying
- .5 31 22 19 – Finish Grading
- .6 31 23 16 – Excavation
- .7 31 23 23 – Backfill
- .8 32 72 00 – Wetlands Creation

QUALITY CONTROL

1.4 References

- .1 NOT USED.

1.5 Submittals

- .1 Within fifteen (15) working days following Notice of Contract Award, submit the QC Plan for review and acceptance by the Departmental Representative. The Contractor's QC Plan shall include:
 - .1 Reporting and Document Control Plan describing procedures for communicating progress testing and other data with the Departmental Representative.
 - .2 Personnel procedures, methods, instructions, records, and forms to be used to control the Work and verify that the Work conforms to the Contract Documents.
 - .3 Description of the quality control organization, including an organization chart showing the various QC team members, along with their designated responsibilities and lines of authority. At a minimum, identify the Project Manager/Superintendent, Site Supervisor(s), QC Supervisor, Licensed Surveyor, and Health and Safety Coordinator.
 - .4 Acknowledgement that the QC staff will conduct inspections for all aspects of the work specified, and shall report to the QC Supervisor, or someone of higher authority in the Contractor's organization.
 - .5 The name, qualifications, duties, responsibilities, and authorities of each person assigned a primary QC function.
 - .6 Testing methods, schedules, and procedures used to report QC information to the Departmental Representative, including samples of the various reporting forms.
- .2 In preparing the QC Plan the Contractor shall refer to other sections of these Specifications, the Design Drawings and the EMP for information regarding testing requirements and inspections related to quality assurance and quality control.
- .3 Any laboratory utilized by the Contractor must have the appropriate certification in accordance with ISO/IEC Standard 17025. The Contractor shall submit documentation showing that the proposed laboratory is certified for the specific parameters of concern and proposed analytical methods with the pre-construction submittals.

1.6 Quality Control and Organization

- .1 QC Supervisor: As part of the QC Plan, the Contractor shall identify an individual within its organization, located at the Dunn's Nook Work Site, who shall be responsible for overall management of the QC as part of the Contract, and have the authority to act in all QC matters for the Contractor.

QUALITY CONTROL

1.7 Inspection

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than the Dunn's Nook Work Site, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .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.
- .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. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.8 Independent Inspection Agencies

- .1 Independent Inspection/Testing Agencies may be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Contractor shall provide equipment required for executing inspection and testing by appointed agencies, at no additional cost to the Contract.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Contractor to pay costs for retesting and re-inspection.

1.9 Access to Work

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

QUALITY CONTROL

1.10 Procedures

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

1.11 Rejected Work

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representatives failing to conform to Contract Documents. Replace or re-execute in accordance with Contract documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in the opinion of the Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Contractor shall deduct from the Contract Price, the difference in value between Work performed and that called for by the Contract documents; amount of which will be determined by Departmental Representative.

1.12 Reports

- .1 Submit two (2) copies of all inspection and test reports to Departmental Representative within two (2) days following completion of inspection or receipt of analytical data from a testing laboratory.
- .2 Provide copies to subcontractor of work being inspected or tested.

Part 2 PRODUCTS

2.1 NOT USED

Part 3 EXECUTION

3.1 NOT USED

END OF SECTION

MOBILIZATION AND DEMOBILIZATION

1. PART 1 – GENERAL

1.1 Description

- .1 This Section covers mobilization and demobilization.
- .2 Mobilization shall include: all pre-construction submittals; the establishment of necessary site offices, site perimeter fencing, and other temporary facilities (as covered by Section 01 51 00 Temporary Facilities) including utility connections; site preparation of working and Contractor Staging and Laydown Area; set up of site survey control monuments; development and implementation of all Environmental Protection measures; and mobilization of all equipment and personnel to site.
- .3 Final demobilization shall occur at the end of the Stage 1 Work, and shall include: all things necessary to remove all construction equipment, dismantling and removal of all temporary facilities; and the clean up of the site to a condition satisfactory to the Departmental Representative at completion of the Work.
- .4 Remobilization and demobilization for Stage 2 marsh planting is incidental to the work and shall be included in the cost of planting.
- .5 Remobilization and demobilization for Stage 3 maintenance is incidental to the work and shall be included in the cost of maintenance.

1.2 Related Sections

- .1 01 11 55 General Instructions.
- .2 01 33 00 Submittal Procedures.
- .3 01 51 00 Temporary Facilities.

1.3 Measurement and Payment Procedures

- .1 Mobilization and demobilization will not be measured for payment.
- .2 Mobilization and final demobilization will be paid for at the Lump Sum price tendered for MOBILIZATION AND DEMOBILIZATION. Payment shall include for all costs in connection with the items listed in Clauses 1.1.2, and 1.1.3 of this Section. The lump sum bid for mobilization and final demobilization shall be paid upon completion of all of the items listed in Clause 1.1.2 and 1.1.3 to the satisfaction of Departmental Representative.
- .3 Supply and set up of plant and equipment not specifically noted in Clauses 1.1.2 and 1.1.3 of this Section shall be deemed to be incidental to the Work and shall not be covered by the mobilization and demobilization lump sum.

1.4 References

- .1 NOT USED

1.5 Definitions

- .1 Refer to Section 01 11 55 General Instructions for definitions related to this Contract.

1.6 Submittals

- .1 Refer to all relevant Sections of these Specifications for Submittals that are required for the Works.

2. PART 2 – PRODUCTS

2.1 NOT USED

3. PART 3 – EXECUTION

3.1 NOT USED

END OF SECTION

TEMPORARY FACILITIES

Part 1 GENERAL

1.1 Description

- .1 This section presents requirements for establishment of temporary facilities as part of the Work including Contractor access to the Dunn's Nook Work Site, locations of Contractor Staging and Laydown Area and Contractor Office Facilities Area, including offices and hygiene facilities, storage and utility connections.
- .2 The Contractor Staging and Laydown Area is an area immediately adjacent to the Dunn's Nook Work Site that will be made available to the Contractor for staging the Works and for equipment storage. The Contractor Office Facilities Area will be made available for offices and hygiene facilities for use by the Department Representative or designee. The Contractor Staging and Laydown Area, Contractor Office Facilities Area and Dunn's Nook Work Site are shown on the Drawings.
- .3 The Contractor shall supply, install, maintain, and operate all temporary facilities and controls as long as needed for the safe and proper completion of the Works.
- .4 The Contractor shall make available office space, telephone and internet connections for the Departmental Representative or designee that will be based on-site.
- .5 Locations at the Dunn's Nook Work Site for construction of temporary facilities will be made available to the Contractor after acceptance of pre-construction submittals by the Departmental Representative.

1.2 Measurement and Payment Procedures

- .1 Payment for set-up and maintenance of temporary facilities will be made under the Tender Item for MOBILIZATION, as described in Section 01 50 00 - Mobilization and Demobilization.
- .2 Payment for removal of temporary facilities will be made under the Tender Item for DEMOBILIZATION, as described in Section 01 50 00 Mobilization and Demobilization.
- .3 Payment for temporary water management and control measures, including dewatering to facilitate construction, will be made under the Tender Item for WATER MANAGEMENT AND CONTROL, as per the UNIT PRICE TABLE and as described in Sections 01 35 13.43 Special Procedures for Contaminated Sites, 01 35 43 Environmental Procedures, 01 51 00 Temporary Facilities, 31 23 16 Excavation and 31 23 23 Backfill.

TEMPORARY FACILITIES

- .4 Payment for temporary sediment and erosion control measures during construction will be made under the Tender Item for SILTATION CONTROL and WATER TREATMENT as per the UNIT PRICE TABLE and as described in Sections 01 35 13.43 Special Procedures for Contaminated Sites, 01 35 43 Environmental Procedures, 01 51 00 Temporary Facilities, 31 23 16 Excavation and 31 23 23 Backfill.

1.3 Related Sections

- .1 See Section 01 11 55 – General Conditions
- .2 See Section 01 33 00 – Submittal Procedures
- .3 See Section 01 50 00 – Mobilization and Demobilization.

1.4 Definitions

- .1 Refer to Section 01 11 55 (General Conditions) for definitions associated with this Contract.

1.5 Submittals

- .1 The Contractor shall prepare and submit a Construction Work Plan to the Departmental Representative in accordance with the schedule requirements presented in Section 01 33 00 – Submittal Procedures and as part of the Construction Work Plan.
- .2 The Construction Work Plan shall detail the temporary facilities that will be installed by the Contractor and describe their operation and maintenance.
- .3 Should the Contractor propose to construct a temporary Sediment Processing Area within the Contractor Staging and Laydown Area, the Contractor shall describe the location, construction and operation of the facility. Measures for the environmental management of the facility shall be detailed in the Contractor EPP, per the requirements of the EMP presented in Appendix B.

1.6 References

- .1 NOT USED

1.7 Access and Delivery

- .1 The designated entry and exit of Contractor's vehicles to the Dunn's Nook Work Site will be via the Colwood security gate off Island Highway, along Wilfert Road to the Dunn's Nook Work Site.

TEMPORARY FACILITIES

- .2 Vehicular movement in and out of Colwood will pass through check points and be monitored by DND security. All Contractor's and Subcontractor's staff must have current security clearance and carry current photo identification or a valid Contractor's Access Pass.
- .3 The Contractor is required to use only the designated entrance(s) to access the Dunn's Nook Work Site, for deliveries to the site, and access to the Contractor Staging and Laydown Area and the Contractor Office Facilities Area.
- .4 Use of the Dunn's Nook Work Site will be granted to the Contractor through the Departmental Representative.
 - .1 Contractor Staging and Laydown Area will be made available to the Contractor for this Contract to be used for laydown, sediment/soil processing and loading/unloading purposes only.
 - .2 The Contractor Office Facilities Area will be made available for office staging and hygiene facilities.
 - .3 Parking for the Contractor's staff shall be designated by the Departmental Representative.
- .5 Provide and maintain access roads, sidewalk crossing ramps, and construction runways as may be required for access to the work. All roadways and walkways outside of the Contractor's Dunn's Nook Work Site must be kept clear of materials and equipment at all times.
- .6 Provide and maintain competent flag operators, traffic signals, barricades and flares, lights, or lanterns as may be required to perform work and to protect other users of the Colwood facility.

1.8 Installation and Removal of Site Office Space and Storage Facilities

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Provide office space for the Departmental Representative or designee that will be based on-site.
- .3 Remove from site all such work after use.

1.9 Dewatering

- .1 Provide temporary water control and management measures as deemed necessary to control water ingress in to the excavation and construction area to facilitate the work outlined in the Specifications and ensure quality control of the construction and suitable environmental management. Further information and requirements are presented in other Specification sections.

TEMPORARY FACILITIES

1.10 Water Supply

- .1 Contractor shall provide continuous supply of potable water for construction use.
- .2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal. Use of existing utilities shall not be assumed by the Contractor.
- .3 Contractor shall pay for utility charges at prevailing rates.

1.11 Temporary Heating and Ventilation

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.
 - .5 Ventilate temporary sanitary facilities.
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

1.12 Temporary Power and Light

- .1 Contractor shall pay for temporary power during construction for temporary lighting and operating of power tools, to a maximum supply of 230 volts 30 amps.
- .2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.
- .3 Temporary power for electric cranes and other equipment requiring in excess of above is responsibility of Contractor.
- .4 Provide and maintain temporary lighting throughout project.

TEMPORARY FACILITIES

1.13 Temporary Communication Facilities

- .1 Provide and pay for temporary telephone, fax, data hook up, line[s] equipment necessary for Contractor's use and use of Departmental Representative or designee.

1.14 Fire Protection

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by [insurance companies having jurisdiction] [and] governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 As part of the EPP, the Contractor shall provide sediment and erosion control drawings and a sediment and erosion control plan, specific to the Work Site and the Work being undertaken. The plan shall document the temporary erosion and sedimentation control measures that shall be implemented by the Contractor to prevent soil/sediment erosion and discharge of soil/sediment laden water runoff or airborne dust to adjacent properties, walkways and water bodies. The sediment and erosion control measures shall comply with permits/authorizations, the requirements of the EMP, provincial laws, municipal by-laws and rules at the Dunn's Nook Work Site, whichever is more stringent.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent grade and materials have been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

- .1 Work under this section to be performed by the Contractor includes furnishing of all labour, equipment, materials, and other incidentals required for waste management and disposal or recycling of waste materials generated during the Works. Disposal activities shall include disposal of excavated Contaminated Sediments and debris. For the purposes of Tender, the Contractor shall assume that all excavated Contaminated Sediment and associated debris require disposal at a permitted Treatment Facility and/or Disposal Facility, as defined in these specifications, and according to the British Columbia Contaminated Sites Regulation (CSR) for material exceeding Industrial Land use standards (i.e., IL+). Information regarding the nature of Contaminated Sediments for disposal is presented in the data reports in Appendix A of these Specifications.
- .2 The Contractor is also required to remove and dispose of three (3) timber pilings that are located in the Dunn's Nook basin, at a suitably permitted Disposal Facility.
- .3 The Contractor shall identify the Treatment Facility and/or Disposal Facility, and recycling facilities that are to be used by the Contractor as part of the Tender and shall confirm the details of those facilities, including permits, to the satisfaction of the Departmental Representative.
- .4 At the point of departure from the Dunn's Nook Work Site, as shown on the Drawings, the Contractor assumes ownership of and risk in all materials being transported and disposed of off-site under this Contract.
- .5 Waste management and disposal activities shall be performed in accordance with environmental protection requirements, as stated in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) and Section 01 35 43 (Environmental Procedures), and in accordance with the applicable permits.
- .6 The Contractor is required to ensure that all waste management and disposal activities are undertaken in compliance with federal, provincial and local/municipal regulations and bylaws.
- .7 The Contractor shall not change location of its accepted permitted Treatment Facility and/or Disposal Facility without prior notification to, and review and acceptance by, the Departmental Representative.

1.2 Related Sections

- .1 01 11 55 - General Instructions
- .2 01 33 00 - Submittal Procedures

- .3 01 35 13.43 - Special Project Procedures for Contaminated Sites
- .4 01 35 43 - Environmental Procedures
- .5 01 45 00 - Quality Control
- .6 35 20 23 - Stockpile Dewatering and Transportation
- .7 31 23 16 - Excavation

1.3 Definitions

- .1 Refer to Section 01 11 55 (General Instructions) for definitions related to this Contract.

1.4 Measurement and Payment Procedures

- .1 Final measurement for Disposal of Contaminated Sediment/Soil at the permitted Disposal or Treatment Facility shall be by the in situ cubic metre (m³), based on comparison of the Contractor's Pre-Construction and Post-Construction excavation surveys, under the Tender Item for Disposal of Contaminated Sediments/Soils and associated debris, as indicated on the Unit Price Table.
- .2 Monthly progress payments during completion of the Stage 1 Work will be measured based on Contractor-reported volumes calculated using Contractor progress surveys. Final payment for Disposal of Contaminated Sediment/Soil will be based on the final measurement of excavated volumes, and final payment shall be reconciled with previous monthly progress payments to determine the amount of final payment. Final payment for the Disposal of Contaminated Sediment/Soil will not be made until the Contractor provides the Departmental Representative with the Certificate of Disposal from the Disposal Facility.
- .3 No separate measurement and payment will be made for disposal of general waste materials generated during the construction.
- .4 Payment for removal and disposal of three (3) timber pilings that are located in the Dunn's Nook basin, will be per piling as indicated on the Unit Price Table.
- .5 The Contractor is required to undertake all disposal activities in accordance with federal, provincial and local/municipal regulations and bylaws.

1.5 Submittals

- .1 As part of the detailed Construction Work Plan and/or the EPP prepared and submitted by the Contractor prior to the Works, in accordance with Section 01 33 00 (Submittal Procedures), the Contractor shall prepare a section that describes the procedures for temporarily storing, segregating, handling and disposing of waste materials generated during the Works. At a minimum, the description shall contain the following information:

- .1 Identification of the types of waste materials that will be generated during the Works.
- .2 Locations of facilities that are to be used for Disposal, Treatment or recycling of waste materials and details of operating permits for those facilities, including documented regulatory confirmation that the facilities can accept the waste materials at the types and quantities proposed.
- .2 For all permitted Treatment Facility and Disposal Facility proposed by the Contractor, the Contractor must provide the following information:
 - .1 Location and owner of proposed Treatment Facility and/or Disposal Facility.
 - .2 Documentation that the proposed Treatment Facility and/or Disposal Facility has a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a province or territory for the treatment and/or disposal, respectively, of soil or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands or any other land use specified in the BC Contaminated Sites Regulation.
 - .3 Method of treatment, as appropriate, if waste materials are transported to a Treatment Facility.
 - .4 Elimination of liability and acceptance of ownership at the Treatment Facility and/or Disposal Facility.
 - .5 Documentation regarding the type of treatment and/or disposal to be provided by the Treatment Facility and/or Disposal Facility.
- .3 No receiving facility shall be created for the specific use of this Contract.
- .4 The location of any off-site barge off/on-loading facilities that may be used by the Contractor, if required, shall be provided and confirmation of environmental protection measures and best management practices that shall be implemented at those facilities when handling Contaminated Sediments shall be identified in the EPP.
- .5 The Contractor shall provide reference to the construction work schedule that identifies timing and sequencing for completion of disposal activities, as they relate to other major elements of the work.
- .6 The Contractor shall identify the number of anticipated truck transport movements and timing.
- .7 The Contractor shall identify the methods, procedures and controls to be used to segregate, handle, store, transport, and dispose of Waste to an appropriate Disposal Facility(ies), in accordance with applicable guidelines, protocols, procedures, and regulations.

- .8 The Contractor shall identify the methods, procedures, and controls that may be used to sample, assess, treat, and potentially reclassify Contaminated Sediment at a permitted Treatment Facility; reclassification of the material is optional at the discretion of the Contractor. Methods must specifically address how proposed treatment activities are in line with provincial and federal protocols, procedures, regulations, and guidance, and how dilution of contaminants shall be avoided.
- .9 The Contractor shall identify the Best Management Practices (BMPs) proposed to be implemented and/or as required by the Environmental Management Plan (EMP; Appendix B) and as described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), Section 01 35 43 (Environmental Procedures) and Section 35 20 23 (Stockpile Dewatering and Transportation), during completion of disposal activities.
- .10 As part of the daily record keeping, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall keep a daily record of disposal activities, including the estimated quantity of waste materials that have been disposed off-site. Copies of these Daily Records shall be included in the Contractor Weekly Construction Report and shall be signed by the Contractor's site superintendent and quality control manager.
- .11 Weekly Construction Reporting: As part of the Contractor's Weekly Construction Report the Contractor shall summarize the week's work for disposal activities. The Weekly Construction Report shall also identify anticipated work to be completed in the present week, and present the latest information regarding estimated volumes for material sent off-site for disposal. The Weekly Construction Report shall be signed by the Contractor's site superintendent and quality control manager.
- .12 The Contractor shall submit to the Departmental Representative copies of all Certificates of Treatment supported by laboratory analytical data for the contaminants of potential environmental concern as necessary to account for and demonstrate the treatment of the material.
- .13 The Contractor shall submit to the Departmental Representative copies of all Certificates of Disposal to account for and demonstrate the disposal of all material excavated in relation to Section 35 20 23 (Stockpile Dewatering and Transportation). The Certificates of Disposal must be from the final resting place of the material.
- .14 The Contractor shall submit to the Departmental Representative copies of all manifests, and other documentation to demonstrate and track the final disposition of the waste materials. The documentation shall track the material from the point of removal from the Work Site to the final disposal at the Disposal Facility(ies).

1.6 Inspection Facilities

- .1 The Departmental Representative may inspect the permitted Treatment Facility and Disposal Facility(ies) proposed by the Contractor prior to the start of the Works and at any time during completion of the Works.
- .2 The Contractor shall provide access to the Departmental Representative or designee to inspect the facility(ies).

1.7 Misplace Material

- .1 The Contractor shall assume liability for misplacement of any waste materials generated as part of this Contract, once removed from the Work Site and will be required to notify and coordinate with appropriate authorities.
- .2 Should the Contractor refuse, neglect, or delay compliance with this requirement, such misplacement may be removed by the Departmental Representative or its agents, and the cost of such operations may be deducted from any money due to the Contractor.
- .3 The Contractor shall be responsible for any fees, fines, penalties, or other costs resulting from misplaced materials.

1.8 References

- .1 British Columbia Ministry of Environment Technical Guidance No. 1 and 2.
- .2 Canadian Transportation of Hazardous Goods Act – Transportation of Hazardous Goods Regulation, amended May 19, 2010.
- .3 British Columbia Environmental Management Act – Hazardous Waste Regulation, BC Reg 63/88, amended April 1, 2009).
- .4 British Columbia Environmental Management Act – Contaminated Sites Regulation, BC Reg. 343/2008, with amendments to January 1, 2009.

1.9 Materials Source Separation

- .1 As part of the Construction Work Plan develop a materials source separation program. Provide separate containers for re-usable and/or recyclable materials of the following:
 - .1 Metals.
 - .2 Wood.
 - .3 Plastics
 - .4 Other materials.

- .2 Implement a materials source separation program for waste materials generated during the Works.
- .3 Locate containers in locations to facilitate deposit of materials without hindering daily operations.
- .4 Locate separated materials in areas which minimize material damage.

1.10 Division of Materials

- .1 Create a list of materials to be separated from the general waste stream and stockpiled in separate containers, to the acceptance of Departmental Representative and consistent with fire regulations.
 - .1 Label containers.
 - .2 Provide instruction on disposal practices

1.11 Storage, Handling and Application

- .1 As part of the Construction Work Plan, identify measures to reduce waste materials generated during the Works.
- .2 Handle waste materials not re-used, salvaged, or recycled in accordance with regulations and codes.
- .3 Materials in separated condition: collect, handle, store on site, and transport off-site to an accepted and authorized recycling facility.
- .4 Materials must be immediately separated into required categories for re-use or recycling.
- .5 Unless specified otherwise, materials for removal become the Contractor's property.
- .6 On-site sale of salvaged/recyclable material is not permitted.
- .7 Provide Departmental Representative with Certificates of Disposal indicating quantity of material delivered to permitted disposal facilities.
- .8 Provide Departmental Representative with receipts indicating quantity and type of materials sent to licensed recycling facility.

2. PART 2 – PRODUCTS

2.1 Materials

- .1 NOT USED

3. PART 3 – EXECUTION

3.1 Sequencing

- .1 Disposal activities shall not begin until the Departmental Representative has reviewed and accepted the Contractor's Construction Work Plan and Environmental Protection Plan, including proposed Disposal and Treatment Facilities.
- .2 All disposal activities are to be undertaken in accordance with federal, provincial and local/municipal regulations and bylaws.

END OF SECTION

CLOSEOUT SUBMITTALS

Part 1 GENERAL

1.1 Description

- .1 This section provides project closeout requirements for post-construction submittals that the Contractor shall be required to submit to the Departmental Representative following completion of the Work.
- .2 This section also presents process and requirements for inspection and declaration that the Work has been completed as required in the Contract Documents. Upon formal review and acceptance of the Work by the Departmental Representative, the Work will be determined to be complete and the Contractor shall then demobilize from the Dunn's Nook Work Site.

1.2 Measurement and Payment Procedures

- .1 No separate payment will be made for closeout submittals. The Contractor shall refer to the Unit Price Table for details regarding measurement and payment for the Contract Work.

1.3 Related Requirements

- .1 **NOT USED**

1.4 References

- .1 **NOT USED**

1.5 Administrative Requirements

- .1 Project Construction Completion Meeting:
 - .1 Convene meeting one [1] week prior to Contract completion with Contractor and Departmental Representative, in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Departmental Representative to establish communication procedures with the Contractor for:
 - .1 Notification of construction defects.
 - .2 Determining priorities for types of defects identified.
 - .3 Determination of a reasonable response time.
 - .3 Ensure Contractor contact is located within local service area of warranted construction, is continuously available and is responsive to inquiries for defective Work action.

CLOSEOUT SUBMITTALS

1.6 Submission

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Preparation of submittals and data by personnel experienced in the construction and maintenance of described products.
- .3 Two [2] weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four [4] final copies of all Record Drawings and other required post-construction documents.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.7 Format

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 (100) mm with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by Work items, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.
 - .2 Drawings shall meet the PWGSC format for close out submission.
- .9 Provide 1:2,000 scaled CAD files in dwg format on DVD(s).

1.8 Contents – Project Record Documents

- .1 Table of Contents for each volume:
 - .1 Provide title of project;
 - .2 Date of submission;

CLOSEOUT SUBMITTALS

- .3 Names, Addresses, and telephone numbers of Consultant and [Contractor] [Design-Builder] with name of responsible parties.
- .4 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.9 As-built Documents and Samples

- .1 Maintain at site for Departmental Representative, in addition to requirements in General Conditions, one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
 - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

CLOSEOUT SUBMITTALS

1.10 Recording Information on Project Record Documents

- .1 Record information on set of black line opaque drawings, and retain a copy on-Site.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

1.11 Final Survey

- .1 Submit final site survey plan, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.12 Materials and Finishes

- .1 **NOT USED.**

CLOSEOUT SUBMITTALS

1.13 Maintenance Materials

- .1 NOT USED.

1.14 Delivery, Storage and Handling

- .1 NOT USED.

1.15 Warranties and Bonds

- .1 Separate each document with index tab sheets keyed to table of contents listing.
- .2 List Subcontractor, Supplier, and Manufacturer with name, address, and telephone number of responsible person.
- .3 Obtain warranties, bonds, test results, and inspection reports executed in duplicate by Subcontractors, Suppliers, Manufacturers, and Inspection Agencies within fifteen (15) days after completion of the applicable item of work.
- .4 Except for items put into use with the Departmental Representative's permission, leave date of beginning of time of warranty until the date of substantial performance is determined.
- .5 Verify that documents are in proper form, contain full information and are notarized.
- .6 Co-execute submittals when required.
- .7 Retain warranties and bonds until time specified for submittal.

1.16 Completion

- .1 Submit a written certificate that the following have been performed:
 - .1 Work has been completed and inspected for compliance with the Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Work is complete and ready for final inspection.

Part 2 PRODUCTS

2.1 NOT USED

Part 3 EXECUTION

3.1 NOT USED

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

- .1 Local survey control and upland benchmark locations are shown on the Drawings. The Contractor shall refer to provided benchmark location information to help establish survey control for the Contract work.
- .2 The Drawings represent conditions existing on the date of the surveys shown on the Drawings and are for information purposes only. The Drawings serve as the basis for the estimated quantities of materials as described in the Contract documents.
- .3 For pre-construction Record Drawings, Progress Surveys to support payment applications and Post-Construction Record Drawings, the Contractor shall employ a third-party licensed professional surveyor, member of the Association of British Columbia Land Surveyors (ABCLS), or professional engineer employed by the Contractor that is licensed to perform topographic surveys in British Columbia.
- .4 The Contractor shall perform the Pre-Construction Survey prior to conducting any excavation work.
- .5 The Contractor shall perform Post-Construction (final) Surveys following Departmental Representative acceptance of the work, based on Progress Survey results. Final measurement and payment for the work will be determined using the Contractor's survey results.
- .6 The Departmental Representative may conduct its own Pre-Construction Survey to compare against the Contractor's Pre-Construction Survey for quality assurance. If there are discrepancies between the two Pre-Construction Surveys, the Contractor's surveyor shall coordinate with the Departmental Representative's surveyor to determine which survey is inaccurate, and if the Departmental Representative determines that the Contractor's survey means and methods are inaccurate, the Contractor shall adjust and correct its surveying means and methods at no additional cost to the Departmental Representative.
- .7 The Departmental Representative may review the Contractor's survey work or conduct additional surveys throughout the construction work as a quality assurance check of the Contractor's Progress and Post-Construction Survey work.
- .8 The Contractor shall establish its survey and positioning control to provide an accurate method of horizontal and vertical control before any excavation work starts.
- .9 The Contractor shall undertake daily progress surveying control, as described further in this section, to ensure quality control of the work and to calculate or verify volumes, areas, limits, positions, and other aspects of the Work.

- .10 Progress survey data collected by the Contractor shall be presented in Weekly Construction Reports and for Work progress tracking and Quality Control.
- .11 This Work includes furnishing all labor, materials, tools, equipment, and incidentals required for surveying in support of the overall project as described in the Contract documents and in these Specifications.

1.2 Measurement and Payment Procedures

- .1 Surveying will be paid as a LUMP SUM item tendered for SURVEYS. Each day of surveying may consist of multiple surveys as determined by the Contractor's construction schedule. Payment shall include all costs in connection with collection, processing, and reporting of all survey data (pre-construction, progress, and post-construction) that shall be used to calculate or verify progress and measurement and payment volumes, areas, limits, positions, and other aspects of the work, and calculating quantities for progress reporting and measurement and payment purposes, as described in these Specifications.
- .2 The Contractor shall refer to the Unit Price Table for additional detail regarding measurement and payment for SURVEYS.

1.3 Related Sections

- .1 **NOT USED**

1.4 Definitions

- .1 See Section 01 11 55 - General Instructions for all definitions related to these Contract documents.

1.5 Submittals

- .1 As part of the Quality Control Plan, in accordance with Section 01 33 00 - Submittal Procedures, the Contractor shall identify the plan for survey control that describes the means and methods that will be implemented for all surveying activities required for the work. At a minimum, the plan shall contain the following information:
 - .1 Description of survey and horizontal and vertical position control procedures.
 - .2 Description of survey equipment proposed for use in collection of all survey data for the work.
 - .3 Process for completion of all Pre-Construction, Progress, and Post-Construction Surveys as required by and described within these Specifications.

- .4 Process for inclusion of daily Progress Survey data, including all electronic information and data from survey instruments, as part of Weekly Construction Report submittal requirements as described in these Specifications.
- .5 Procedures for providing monthly summary Progress Survey data and volume calculations to the Departmental Representative for progress payments during work.
- .6 Procedures and quantity calculation methods for calculating progress volumes and final measurement and payment volumes.
- .2 Pre-Construction, Progress, and Post-Construction Surveys.
 - .1 Surveys shall be completed using the project horizontal (Universal Transverse Mercator) and vertical geodetic datum.
 - .2 The Contractor's licensed professional surveyor shall stamp all Departmental Representative-accepted Pre-Construction and Post-Construction Surveys. The licensed surveyor does not need to stamp the Progress Surveys.
 - .3 Submit all surveys in hard copy drawing format and electronic drawing format as described below to Departmental Representative.
 - .4 Submit Pre-Construction Survey and calculated quantities to the Departmental Representative at least two (2) weeks prior to start of Works.
 - .5 Submit Post-Construction Surveys and calculated quantities to the Departmental Representative within 72 hours after completing the Post-Construction Survey, and as part of the Contractor's Weekly Construction Report.
- .3 Hard Copy Drawing Requirements:
 - .1 Provide plan view contour drawing, using 0.2-metre contour intervals (using even number intervals).
 - .2 Provide plan view spot elevation drawing.
 - .3 Provide cross sections through the area where work was completed at no greater than 15-metre spacing between cross sections unless otherwise accepted by the Departmental Representative. Cross section information shall show the pre-construction elevations, progress or post-construction elevations, and the design template (elevations and grades).
 - .4 Indicate on drawing, at a minimum, the date of survey, datums, extent of survey coverage, elevation markings (for spot elevations and contour lines), location of cross sections, scale bar, and licensed professional surveyor stamp (for Pre-Construction and Post-Construction Surveys).

- .4 Electronic Drawing Requirements:
 - .1 Submit all survey data in AutoCAD Civil3D 2012 format or older format if acceptable to the Departmental Representative.
 - .2 Submit all survey data in a separate ASCII text file with XYZ spot elevation data.
 - .3 The Departmental Representative will provide the Contractor with the Dunn's Nook Work Site basemap file in *.dwg format for Contractor use.
- .5 Quantity Calculations
 - .1 The Contractor shall submit its quantity (volume) calculations to the Departmental Representative for review and acceptance. The Contractor shall also submit supporting information to help the Departmental Representative verify that the Contractor's calculated quantities are accurate. Supporting information may include, but is not limited to, certified weight tickets, and other field inspection information that the Contractor may elect to use for quality control purposes.
 - .2 Quantities shall be computed to the nearest in situ cubic metre based on comparison to the Contractor's Pre-Construction Survey or relevant Progress Surveys. Quantities shall be broken down by each bid item listed in the Unit Price Table.
 - .3 Quantities shall be computed using Triangulated Irregular Network (TIN) or similar three-dimensional calculation methods using generated surfaces from the survey data. The Contractor shall describe its quantity calculation method(s) in the Quality Control Plan. Double end area method will not be an acceptable quantity calculation method.
 - .4 Quantities calculations shall be submitted on a daily and weekly basis as part of the Daily Construction Report and Weekly Construction Report, and as part of progress payment requests for completion of the work.

2. PART 2 – PRODUCTS

2.1 NOT USED

- .1 Not Used

3. PART 3 – EXECUTION

3.1 Survey Equipment

- .1 The Contractor shall employ an accepted method to locate and control horizontal position that can include: Real Time Kinematic Global Positioning System (RTK-GPS) or Differential Global Positioning System (DGPS). If the Contractor proposes to use an alternative positioning method, that method must be submitted to the Departmental Representative and accepted prior to start of work.

- .2 Bed elevations, converted to the project vertical datum, shall be determined using spot elevation measurements and survey control points.
- .3 Accuracy for measured elevations shall be +/- 0.01 metres; accuracy of horizontal position shall be +/- 0.1 metres at the 95% confidence interval.

3.2 Conduct of Work

- .1 Layout of Work
 - .1 The Contractor shall establish an accurate method of horizontal and vertical control before the work begins. Survey control points shown on the Drawings are provided for reference purposes only to assist the Contractor in establishing horizontal and vertical control.
 - .2 The proposed method and maintenance of the horizontal control system shall be subject to the acceptance of the Departmental Representative and if, at any time, the method fails to provide accurate location of the work, the Contractor may be required to suspend its operations until such time that accurate control is established.
 - .3 The Contractor shall lay out its work using control points established by the Contractor as part of the work and shall be responsible for all measurements taken to establish these points.
 - .4 The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, range markers, transponder stations, and labor as may be required to lay out the work shown on the Drawings.
 - .5 It shall be the responsibility of the Contractor to maintain all points established for the work until authorized to remove them. If such points are destroyed by the Contractor or disturbed through its negligence prior to an authorized removal, they shall be replaced by the Contractor at no additional expense to the Departmental Representative.

3.3 Pre-Construction, Progress, and Post-Construction Surveys

- .1 The Pre-Construction Survey shall cover all areas of work as shown on the Drawings, and extend at least 15 metres past the land and water boundaries of the Dunn's Nook Work Site.
- .2 Progress Surveys
 - .1 The Contractor shall provide measurements as per the milestones outlined for excavation progress and backfill placement progress (below).
 - .2 The survey's spot elevation spacing shall be determined by the Contractor and shall provide sufficient density of spot elevation data to provide adequate information for the Contractor to provide quality control of its work. The Departmental Representative shall be satisfied as to the

- survey's data density, and if not satisfied may advise the Contractor to increase the survey data density at no additional cost to PWGSC.
- .3 The survey data shall accompany the Contractor's Daily Construction Report submitted to the Departmental Representative, including all electronic information and data from survey instruments.
 - .4 Survey results may be used to adjust construction procedures to ensure that the configuration of the work conforms to the Drawings and permit requirements. The Contractor may be required to adjust its construction procedures to ensure compliance with the Drawings and permit requirements, at no additional expense to the Departmental Representative.
- .3 Excavation Progress Surveys
- .1 The Contractor's excavation Progress Surveys will be used to determine excavation elevations and for computing progress excavation volumes used for progress measurement and payment for the work.
 - .2 The Contractor shall complete the following excavation Progress Surveys at the following construction milestones:
 - .1 Existing grade prior to excavation (Pre-Excavation survey);
 - .2 As-built of the subgrade following excavation (Post-Excavation survey);
 - .3 The Departmental Representative reserves the right to conduct its own surveys during construction to verify the Contractor's survey work. In the event of a discrepancy, PWGSC may choose to retain another surveyor mutually acceptable to both the Contractor and Departmental Representative to resolve the discrepancy.
- .4 Backfill Placement Progress Surveys
- .1 Following completion of all excavation activities within a specific area and acceptance of the work by the Departmental Representative, materials placement/backfill activities can be commenced.
 - .2 The Contractor shall complete backfill placement Progress Surveys at the following construction milestones:
 - .1 As-built following placement of the cobble material in the northwest corner of Dunn's Nook;
 - .2 Placement of 25% of the pit run (by volume);
 - .3 Placement of 50% of the pit run (by volume);
 - .4 Placement of 75% of the pit run (by volume);
 - .5 Placement of 100% of the pit run (by volume) and construction of Channel A; and
 - .6 As-built following placement of sand and construction of Channel B.

- .3 Results of backfill placement Progress Surveys should accurately depict progress of the material placement work and shall be submitted as part of the Contractor Weekly Construction Reports.
- .4 The Contractor and Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for excavation Progress Surveys.
- .5 Post-Construction Surveys
 - .1 Required Post-Construction Surveys
 - .1 Following completion of excavation and backfilling Work and Departmental Representative acceptance of the Work completion, based upon review of the Progress Surveys the Contractor shall conduct a Post-Construction Survey that will be used for final measurement and payment for the Work.
 - .2 Results of this survey will be compared to the monthly progress reports provided by the Contractor (for progress payment) and adjustments to final payment for the work will be made as necessary.
 - .3 The Contractor shall also conduct a survey of constructed elevations prior to the undertaking on the Stage 2 planting Works to confirm that the elevations remain consistent with the design prior to planting. This survey shall be undertaken no more than three (3) weeks prior to planting.
 - .4 The Departmental Representative reserves the right to conduct its own Post-Construction Survey during construction to verify the Contractor's survey work. In the event of a discrepancy, the Departmental Representative may choose to retain another surveyor mutually acceptable to both the Contractor and Departmental Representative to resolve the discrepancy.
 - .5 The Contractor and Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for Excavation Progress Surveys.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

- .1 This section specifies requirements for dust control for the duration of the project.

1.2 Related Sections

- .1 **NOT USED**

1.3 Measurement and Payment Procedures

- .1 Supply and application of water for dust control is considered incidental to the work and will not be measured separately.
- .2 Supply, installation, relocation as necessary, and final removal of dust screens for dust control is considered incidental to the work and will not be measured separately.
- .3 No measurement or payment will be made under this section.

1.4 References

- .1 **NOT USED**

1.5 Definitions

- .1 Refer to Section 01 11 55 (General Instructions) for all definitions related to this Contract.

1.6 Submittals

- .1 **NOT USED**

2. PART 2 – PRODUCTS

2.1 Materials

- .1 Water: to Departmental Representative's acceptance.
- .2 Dust Screens: to Departmental Representative's acceptance.

3. PART 3 – EXECUTION

3.1 Application

- .1 Ensure that dust arising from the Contractor's operations is controlled by water application and use of dust screens.
- .2 Ensure that dust blown from the Dunn's Nook Work Site or Contractor Off-Site Onload and Offload facilities does not affect adjacent facilities.
- .3 Apply water as required for dust control, and when advised by Departmental Representative. Dust control methods shall be chosen such that a minimal amount of water is required.
- .4 Apply water with distributors equipped with spray system to ensure uniform application and with means of shut off.
- .5 Runoff from water used for dust control shall not enter the storm drains.
- .6 Install, relocate as necessary, and remove dust screens at completion of those portions of the work that may generate airborne dust.

END OF SECTION

Part 1 GENERAL

1.1 Related Sections

- .1 Section 02 21 13 - Surveying
- .2 Section 31 23 16 - Excavation
- .3 Section 31 23 23 – Backfill
- .4 Section 32 72 00 – Wetlands Creation

1.2 References

- .1 Not Used.

1.3 Existing Conditions

- .1 Examine Data Reports presented in Appendix A of these Specifications.
- .2 General locations of known underground and surface utility lines are as indicated on the Drawings; however, the Contractor shall be responsible for identifying and confirming the location of all utilities and obtaining clearance for all utility providers.

1.4 Protection

- .1 Protect existing trees and natural features which are to remain as directed by the Departmental Representative. If damaged, restore to original or better condition unless directed otherwise.
- .2 Maintain access roads to prevent accumulation of construction related debris on roads.

Part 2 PRODUCTS

2.1 Materials

- .1 Fill material: Type Silt/Substrate in accordance with of Section 31 23 23 - Backfill.
- .2 Excavated or graded material existing on site may be suitable to use as fill for grading work if approved by the Departmental Representative.

Part 3 EXECUTION

3.1 Restoring the Natural Environment

- .1 Restoration of the environment shall be as per the Drawings and Specifications.

3.2 Stripping of Topsoil

- .1 It is anticipated that stripping of topsoil will not be required for the construction; however, if it is required:
 - .1 Do not handle topsoil while in wet condition or in any manner in which soil structure is adversely affected as determined by the Departmental Representative.
 - .2 Commence topsoil stripping of areas as directed by the Departmental Representative after area has been cleared of brush, weeds and grasses and materials removed from site.
 - .3 Avoid mixing topsoil with subsoil.
 - .4 Stockpile in locations as indicated by the Departmental Representative. Stockpile height on site not to exceed 2 m.
 - .5 Dispose of unused topsoil off site.

3.3 Grading

- .1 Grade to levels, profiles, and contours allowing for surface treatment as indicated on the Drawings.
- .2 Grade ditches to depth as indicated on Drawings.
- .3 Prior to placing fill over existing ground, scarify surface to depth of 150 mm. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.
- .4 Do not disturb soil within branch spread of trees or shrubs to remain.

3.4 Testing

- .1 Inspection of Dunn's Nook site Works will be carried out visually by the Departmental Representative.
- .2 Submit report of inspections to the Departmental Representative.
- .3 Submit testing procedure, frequency of tests, testing laboratory for quality control of silt/substrate material to the Departmental Representative.

3.5 Surplus Material

- .1 Remove surplus material and material unsuitable for fill, grading or landscaping and dispose of off-site.

END OF SECTION

EXCAVATION

Part 1 GENERAL

1.1 Description

- .1 This section describes details regarding the remedial excavation, which will include completion of excavation activities, including Contaminated Sediment excavation in the areas and depths as shown on the Drawings, and additional excavation that may be required to support additional removal of contaminated sediments if confirmatory sampling and test results indicate the need for additional excavation to meet numeric Remedial Action Objectives. Confirmatory sampling will be undertaken by the Departmental Representative's Environmental Monitor.
- .2 Excavation activities shall be completed according to the sequencing and access requirements described in the Contractor's Construction Work Plan. No excavation of Contaminated Sediments shall be undertaken until water management and control measures have been installed and are functional to the satisfaction of the Departmental Representative. Excavation shall be undertaken in dry conditions.
- .3 The Contractor shall use low impact equipment while working within the Work Site that is suitable for use in soft terrain and wetland type environments.
- .4 The area of Contaminated Sediment excavation includes sediments that contain metals, polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) at concentrations greater than numeric Remedial Action Objectives identified for the project. These sediments shall be excavated for off-site disposal to a permitted Treatment Facility and/or Disposal Facility, as defined in these Specifications. The Contractor shall use excavation equipment that is suitable for working in soft terrain and wetland environments. The Contractor is responsible for selecting the appropriate excavation equipment that considers the site conditions, character of materials, facility usage and existing structures and utilities adjacent to the excavation areas that may be encountered during excavation operations.
- .5 Descriptions of material to be excavated are provided in the reference documents identified below. The Contractor shall review this information and use it to inform the Contractor's Work.
- .6 The Contractor shall take into account the need to remove sediment and debris to the required elevations as shown on the Drawings, plus additional contingency removal for Contaminated Sediments that may be identified through confirmatory testing.
- .7 The Contractor shall provide reasonable access for the Departmental Representative's Environmental Monitor to collect confirmatory sediment samples and shall provide equipment to facilitate collection of samples. The Contractor is required to keep the excavation open for up to five (5) working days until the Departmental Representative has received and assessed the results of confirmatory sampling. Backfilling of the excavation shall not commence until the Departmental Representative has confirmed to the Contractor that confirmatory sampling results are acceptable.

EXCAVATION

- .8 Along the southern edge of Dunn's Nook, if bedrock is encountered at a depth less than that presented in the Drawings, the excavation will terminate at the bedrock contact; blasting is not required as part of this project.
- .9 In addition to excavation and debris removal within the area shown on the Drawings. The Contractor shall also remove and dispose of three (3) discarded wooden pilings that are located within Dunn's Nook.
- .10 This Work includes furnishing all labour, materials, tools, equipment and incidentals required for excavation in support of the overall project as described in the Contract documents.

1.2 Measurement and Payment Procedures

- .1 Measurement for Contaminated Sediment excavation, associated debris excavation and any additional excavation that may be required based on results of confirmatory sampling shall be by the in situ cubic metre (m^3), based on comparison of the Pre-Construction and Post-Construction Surveys.
- .2 Payment for Contaminated Sediment excavation shall be by the in situ cubic metre (m^3) volume under the corresponding Unit Price Table item. The Unit Price for excavation of Contaminated Sediment and debris shall include any necessary dewatering of excavated materials, as outlined in Section 35 20 23 Stockpile Dewatering and Transportation, to ensure suitability for transport.
- .3 Progress payment during completion of excavation activities will be made by comparison of Contractor Pre-Construction and Progress Surveys and final measurement and payment will be reconciled with the Contractor's Post-Construction survey comparison for that component of the Works.
- .4 For the purposes of Tender, the Contractor shall assume that all Contaminated Sediment and associated debris that is excavated, exceeds the BC CSR Land Use Standards for Industrial Land, under the current regulations for classification and disposal of contaminated sediment. The Contractor shall refer to the data reports in Appendix A of these Specifications for chemistry laboratory analytical results.
- .5 Payment for removal and disposal of three (3) timber pilings located in Dunn's Nook shall be per pile as identified in the Unit Price Table.

1.3 Related Sections

- .1 01 11 55 – General Instructions
- .2 01 31 19 – Project Meetings
- .3 01 33 00 – Submittal Procedures
- .4 01 35 13.43 – Special Project Procedures for Contaminated Sites.
- .5 31 23 23 – Backfill.
- .6 35 20 23 – Stockpile Dewatering and Transportation
- .7 01 74 19 - Waste Management and Disposal.

EXCAVATION

1.4 Definitions

- .1 Refer to Section 01 11 55 (General Instructions) for definitions related to this Contract.

1.5 Site Information and Background Reports

- .1 Refer to data reports presented in Appendix A of these Specifications.
- .2 Refer to EMP, including Soil/Sediment and Water Control Management Plan and Archaeological Monitoring Plan, presented in Appendix B to these Specifications.
- .3 Existing Grade:
 - .1 Results of surveys and other additional relevant site information are provided in the attached appendices and Drawings.
- .4 Character of Materials:
 - .1 Subsurface investigations were performed to characterize the physical and chemical quality of excavated materials. Detailed results from the geotechnical and environmental investigations, including chemical testing, are provided in the attached appendices and reference materials.
 - .2 The Contractor shall satisfy itself regarding the nature of materials present at the site prior to Tender. The type of materials encountered at the Dunn's Nook Work Site may vary from the conditions described in the attached appendices and reference drawings. Variations in the type of materials encountered may occur that do not differ materially from those indicated in these Specifications, and if encountered, will not be considered as basis for claims due to differing Dunn's Nook Work Site conditions.
 - .3 Hard material in its natural state is defined as material requiring blasting, and includes boulders or fragments too large to be removed in one piece by the excavation equipment. Potential riprap or rock fill may be encountered during the Works, which can be removed in one piece by the excavation equipment. No blasting is required as part of this Contract.
 - .4 The Contractor shall provide all necessary debris screening and the costs for this Work shall be considered incidental to the Work, as described in the Unit Price Table.
 - .5 Excavated materials, including debris and Contaminated Sediment, shall be disposed of at an off-site Disposal Facility that has been accepted by the Departmental Representative, as defined in these Specifications and in accordance with applicable local, provincial and federal regulations.

1.6 Regulations

- .1 Federal Fisheries Act
- .2 BC Environmental Management Act
- .3 British Columbia Contaminated Sites Regulation
- .4 Local/Municipal Bylaws
- .5 See Section 01 11 55 (General Instructions) for regulatory requirements pertaining to this Contract.

1.7 Submittals

- .1 As part of the Contractor's detailed Construction Work Plan, in accordance with Section 01 33 00 (Submittal Procedures), the Contractor shall prepare a section that describes the approach that will be implemented for excavation and handling of excavated materials.
- .2 Excavation activities shall not begin until the Construction Work Plan has been reviewed and accepted by the Departmental Representative.
- .3 At a minimum, the excavation and materials handling approach described in the Construction Work Plan shall contain the following information:
 - .1 Site layout, including excavation area, dewatering/sediment processing location and configuration for the Work to be completed.
 - .2 Reference to the construction work schedule that identifies timing and sequencing for completion of excavation activities, as they relate to other major elements of the Works
 - .3 Number, types and capacity of equipment to be used.
 - .4 Means and methods for completion of excavation activities, including sequencing and water management and control measures that need to be in place to ensure environmental protection and prevent water ingress into the Work area.
 - .5 Procedures and equipment for collecting and handling of debris encountered during excavation.
 - .6 Methods, procedures and controls to protect existing facilities and infrastructure against damage.
 - .7 Best Management Practices (BMPs) proposed by the Contractor and/or as required by the DND Standard Operating Procedures and by the EMP, during excavation and handling of excavated materials and debris.

EXCAVATION

- .4 Daily record keeping: As part of daily record keeping, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall keep a daily record of the areas excavated, the estimated excavation volume, records of surveys, record of where the material has been removed to (e.g., temporary Sediment Processing Area or off-site for disposal) and a summary of other relevant field observations and details of the Work. These daily records shall be submitted to the Departmental Representative on request and shall be included in the Weekly Construction Report. Daily records shall be signed by the Contractor's site superintendent and Quality Control Manager.
- .5 Weekly Reporting: As part of the Weekly Construction Report, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall summarize the week's work activities, provide copies of daily records, test reports, and submit the report to the Departmental Representative. The Weekly Construction Report shall identify Work completed to date, anticipated Work to be completed in the present week (including specific areas identified for excavation, backfilling or habitat restoration) and present the latest Progress Survey and Record Drawings. The Weekly Construction Report shall be signed by the Contractor's site superintendent and Quality Control Manager.

1.8 Tests and Inspections

- .1 Excavations will be inspected visually by the Departmental Representative. The Departmental Representative's Environmental Monitor will be present during the excavation and will collect confirmatory samples once the excavation has reached depths as shown on the Drawings. The Contractor shall provide access for the Departmental Representative's Environmental Monitor and shall provide equipment (e.g., excavator) to facilitate collection of samples.

1.9 Buried Services

- .1 Before commencing work, the Contractor shall place a BC One Call, obtain clearance from BCEO and verify the location of all buried services on, and adjacent to, the site.
- .2 If necessary, the Contractor shall arrange with appropriate authority for relocation of buried services that interfere with execution of work. The Contractor shall pay the costs of relocating services, if relocations are required.

1.10 Protection

- .1 Protect excavations from freezing.
- .2 Keep excavations clean, free of standing water, and loose soil.
- .3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative's approval.

EXCAVATION

- .4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
- .5 Protect buried services that are required to remain undisturbed.

Part 2 PRODUCTS

2.1 Materials

- .1 For material types to be used for backfill and grading purposes, see specifications, as shown on the Drawings and presented in Specification 31 23 23.

Part 3 EXECUTION

3.1 Site Preparation and Sequencing

- .1 Excavation activities shall not begin until the Departmental Representative has reviewed and accepted the Construction Work Plan and EPP and until water control and management measures are in place.
- .2 The Contractor shall select its means and methods to conduct excavation work such that unnecessary over excavation is prevented.
- .3 Refer to Data Reports presented in Appendix A.
- .4 Construction (and subsequent removal following completion of the Works) of a temporary access ramp from the parking lot, located west of Wilfert Road, into the southeastern corner of Dunn's Nook and a temporary access way from the access ramp to the northwest corner of Dunn's Nook.
- .5 To facilitate access the Contractor shall also remove guard rail that is located at the southeast corner of Dunn's Nook and reinstate in the original condition or better following completion of the Works.

3.2 Clearing and Grubbing

- .1 Remove trees, stumps, logs, brush, shrubs, bushes, vines, undergrowth, rotten wood, dead plant material, exposed boulders, existing soil and debris within areas with Departmental Representative's approval. Contractor shall not excavate in the riparian zone or within areas of archaeological sites.
- .2 Dispose of cleared and grubbed material off-site daily to disposal areas acceptable to authority having jurisdiction.

EXCAVATION

3.3 Water Management and Control

- .1 Install a turbidity (silt) curtain in Esquimalt Harbour, east of Wilfert Road. The silt curtain shall contain potential turbidity associated with discharge of treated water pumped from Dunn's Nook during the Works and shall also be used to manage other sources of turbidity arising from the Works, in Esquimalt Harbour.
- .2 Install tide gate or similar device to each of the existing culverts (3) under Wilfert Road to restrict the flow of marine waters and passage of marine life into Dunn's Nook during the Work; no permanent modification to the culverts is permitted. Following placement of the tide gates, the Contractor shall provide access to consultants designated by the Departmental Representative to conduct a fish salvage. Tide gates (or similar) are to be removed by the Contractor upon successful completion of the Stage 1 Works.
- .3 Install a temporary hydraulic barrier or other water management controls/methods to limit infiltration into Dunn's Nook and undertake excavation work. Sequencing of the Works to account for tides should be assessed by the Contractor, as one of the potential methods for managing water ingress during excavation. The proposed water management methods are to be presented to Department Representative in the Construction Work Plan. A hydraulic barrier could be installed in the southeastern portion of Dunn's Nook on the west side of Wilfert Road and north of the parking lot to reduce water ingress within the Dunn's Nook Work Site during excavation and construction activities. However, the selection and installation of water control methods is the responsibility of the Contractor. No intrusive works related to installation of water control and management are permitted outside of the Work Site, unless approved in writing by the Departmental Representative.
- .4 If a natural sump (naturally occurring low elevation drainage location) cannot be located within Dunn's Nook, the Contractor may excavate a sump so that collection and pumping of water in the basin can take place to facilitate excavation and construction of the habitat to meet the design criteria specified on the Drawings. Sump(s) excavated in Dunn's Nook shall be off-set a distance of ten (10) metres from the toe of embankments surrounding the basin, with a maximum sump depth of 1.5 metres.
- .5 Prior to the start of excavation and construction, the Contractor shall provide containment and management at the northwest end of Dunn's Nook within the existing stream channel to restrict potential surface water flows during the Stage 1 Work.
- .6 Dewatering of Dunn's Nook shall be done with floating pumps to reduce the potential for pumping of sediment laden water in the bottom of the sump. Filtered pump systems can be used but the Contractor shall be responsible for treatment of the water in a siltation plant that is capable of reducing sediment (TSS) within the pumped water to meet the water quality requirements for discharge to Esquimalt Harbour, as identified in the EMP.

EXCAVATION

- .7 All surplus water pumped out of excavation zone shall be treated and discharged within a silt curtain as described in the EMP, and Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) and Section 01 35 43 (Environmental Procedures). It will be the responsibility of the Contractor to implement erosion control measures, as required, to control erosion to the harbour sediments at the point of discharge and meet the discharge water quality for discharge to Esquimalt Harbour.

3.4 Sediment and Soil Management

- .1 Sediments/soils that are being excavated contain elevated concentrations of metals, hydrocarbons and PCBs. The Contractor shall describe procedures for management and handling of Contaminated Sediments in the Construction Work Plan that is submitted prior to construction. Refer to background reports identified in Appendix A.
- .2 The Contractor shall construct a Sediment Processing Area (containment area) within the Contractor Staging and Laydown Area, located adjacent to the southeast portion of the Dunn's Nook Work Site, as shown on the Drawings, for processing and temporarily storing excavated materials. The containment area (e.g., use of locking concrete blocks and geomembrane liners) shall be constructed in a manner to provide appropriate collection of leachate or run-off from the stockpiles.
- .3 All excavated materials which will be transported off-site for disposal shall be dewatered in the Sediment Processing Area, if considered necessary by the Contractor, to reduce moisture content prior to transportation off-Site to a permitted Treatment Facility and/or Disposal Facility.
- .4 Water collected from the Sediment Processing Area shall be directed to a treatment plant for treatment prior to discharge into Esquimalt Harbour. The Contractor shall be responsible for meeting water quality standards for water discharged to Esquimalt Harbour from the treatment plant as outlined in the Environmental Management Plan (EMP). Prior to discharging treated water to the harbour, the Contractor shall collect water samples, submit them to an analytical laboratory to confirm that the discharge meets the discharge requirements, and provide the results to the Departmental Representative. If water from the treatment plant cannot be treated to meet the water quality requirements of the EMP, that water shall be disposed off-Site by the Contractor at no extra cost to the Departmental Representative.

3.5 Excavation

- .1 The Departmental Representative and/or the Departmental Representative's Environmental Monitor will be on-site during excavation activities.
- .2 The Contractor shall excavate to the lines, grades, slopes, and elevations shown on the Drawings. Excavation must be undertaken in a manner that does not cause impacts to adjacent infrastructure or stability of slopes.

EXCAVATION

- .3 The Contractor shall take extra care to adhere to the lines, grades, slopes and elevation requirements when excavation activities adjacent to the archaeological sites are undertaken, as shown on the Drawings. No excavation within the archaeological site is required or permitted. A Departmental Representative Archaeological Monitor will be on-site during excavation activities adjacent to archaeological sites and the Contractor shall provide access to the monitor to undertake their inspections.
- .4 The Contractor shall exercise care when excavating to prevent unnecessary over-excavation. Payment for unnecessary over excavation will not be provided. If the Contractor daily survey controls indicate that the Contractor is excavating excessively, or is excavating outside of the excavation limits, the Contractor shall modify its excavation operations immediately to prevent unnecessary additional disposal and backfill.
- .5 Sediment processing shall be undertaken within the Contractor constructed Sediment Processing Area located within the Contractor Staging and Laydown Area located to the south of the Dunn's Nook Work Site. The existing paved surface shall not be disturbed.
- .6 Upon completion of the Work, and after acceptance by the Departmental Representative, the Contractor shall promptly remove the excavation and associated equipment, including stockpile dewatering facility, materials and other obstructions placed by the Contractor in the water or on shore.
- .7 It is anticipated that stripping of Topsoil will not be required for the construction, however, if it is required:
 - .1 Do not handle topsoil while wet or in any manner in which soil structure is adversely affected.
 - .2 Strip topsoil to depths as directed by the Departmental Representative. Avoid mixing topsoil with subsoil.
 - .3 Strip topsoil over areas to be covered by new construction, over areas where grade changes are required, and so that excavated material may be stockpiled without covering topsoil.
 - .4 Stockpile in locations as directed by the Departmental Representative.
- .8 Excavate as required to carry out work, in all materials met. Notify the Departmental Representative when excavations are complete.
- .9 Once excavation activities are considered by the Contractor to be complete, the Contractor shall conduct a Post-Excavation Survey over the entire footprint to verify that the excavation elevations, as shown on the Drawings, and grades have been met. If high spots remain above the required excavation elevations and grades, the Contractor shall remove such high spots to the satisfaction of the Departmental Representative and re-do the Post-Construction Survey, at no additional expense to the Departmental Representative.

EXCAVATION

- .10 Once any remaining high spots are removed, the Departmental Representative shall review the Contractor's Post-Excavation survey and accept as complete for excavation. The Departmental Representative accepted Post-Excavation survey shall be used to compare against the Pre-Excavation Survey for measurement and payment purposes for excavation.
- .11 After completion of all excavation and acceptance of the Post-Excavation survey by the Departmental Representative, confirmatory samples will be collected by the Departmental Representative's Environmental Monitor to assess residual contaminant concentrations remaining at the base and sidewalls of the excavation. The results of these analyses may indicate the need to conduct additional excavation, if project numeric Remedial Action Objectives are not met.
- .12 After review of the post-excavation confirmatory sampling results, the Departmental Representative may direct the Contractor to conduct additional excavation. At completion of the additional excavation, additional confirmatory sampling will be conducted by the Departmental Representative's Environmental Monitor.
- .13 Upon receipt of the confirmatory sample results and acceptance by the Departmental Representative that no further excavation is required, the Contractor shall conduct a final Post-Excavation Survey for the excavation. The Departmental Representative-accepted Post-Excavation survey shall be used to compare against the final Post-Excavation survey for Contaminated Sediment excavation for measurement and payment purposes to determine the payable volume for the additional excavation.
- .14 Upon acceptance of the final confirmatory sample results and the Post-Excavation survey results by the Departmental Representative, the Contractor shall commence backfilling.
- .15 The Contractor shall plan for up to five (5) working days for the Departmental Representative to receive confirmation sampling results and inform the Contractor whether additional excavation activities will be required. The Contractor will need to take this into consideration when planning the sequencing of the Works, which will be documented in the Contractor Construction Work Plan that is submitted to the Departmental Representative for review and acceptance prior to the start of the Works.

END OF SECTION

Part 1 GENERAL

1.1 Description

- .1 This section deals with the backfilling of the Contaminated Sediment excavation as per the design Drawings.
- .2 This section also refers to those portions of the Stage 1 Work that require:
 - .1 supply and placement of granular aggregate materials for compensatory habitat design construction as per the design Drawings. Included in the Drawings are specifications for the supply of materials for backfilling purposes; and
 - .2 construction of Channel A and B as per the design Drawings.
- .3 The Contractor shall use low impact equipment while working within the Work Site that is suitable for use in soft terrain and wetland type environments.

1.2 Related Sections

- .1 See Section - 31 23 16 – Excavation
- .2 See Section - 32 72 00 – Wetlands Restoration

1.3 Measurement and Payment Procedures

- .1 A number of key reference points on a control line (primary) for the establishment of the design control line shall be provided by the Contractor to lay out the Work. The Contractor shall assume full responsibility for the alignment, dimensions and elevations of each and every part of the Work.
- .2 Unless otherwise specified in the Contract, calculations of quantities will be on a neat line basis, as calculated from the design lines shown on the Drawings, adjusted to accommodate design changes and field fits approved by the Departmental Representative. Placing and spreading of backfill will be measured for payment in cubic metres calculated from cross sections taken from Record Drawings of pre-backfill and post-backfill elevations.
 - .1 No additional payment for double handling of backfill materials will be provided by the Contract. Potential re-handling of materials as a result of logistics and sequencing of the Works determined by the Contractor, shall be accounted for in the tendered unit rates for materials supply and placement.
 - .2 Progress payment can be provided once material has been supplied and placed in final location and quantities are verified based on progress surveys.

- .3 Measurement for Channel A and B construction shall be by the linear metre based on comparison of the Pre-Construction and Post-Construction Surveys. Payment for Channel A and B construction shall be by the linear metre under the corresponding Unit Price Table item.
- .4 Progress payment during construction of Channel A and B activities will be made by comparison of Contractor Pre-Construction and Progress Surveys and final measurement and payment will be reconciled with the Contractor's Post-Construction survey comparison for that component of the Works.

1.4 References

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C117-[04], Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C136-[05], Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D422-63[2002], Standard Test Method for Particle-Size Analysis of Soils.
 - .4 ASTM D698-[00ae1], Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft) (600 kN-m/m;).
 - .5 ASTM D1557-[02e1], Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft) (2,700 kN-m/m;).
 - .6 ASTM D4318-[05], Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-[88], Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-[M88], Sieves, Testing, Woven Wire, Metric.
- .3 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.
- .4 BC Contaminated Sites Regulation (B.C. Reg. 375/96)
 - .1 Schedule 9 Generic Numerical Sediment Criteria.

1.5 Definitions

- .1 Refer to Section 01 11 55 (General Instructions) for all definitions related to this Contract.

1.6 Submittals

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Quality Control: in accordance with Section 01 45 00 - Quality Control:
 - .1 Submit condition survey of existing conditions as described in Existing Conditions article of this Section.
 - .2 Submit for review by the Departmental Representative as part of the Construction Work Plan proposed fill placement methods as described in PART 3 of this Section.
 - .3 Submit to Departmental Representative written notice at least 7 days prior to excavation work, to provide sufficient time for cross sections to be taken.
 - .4 Submit to Departmental Representative testing and inspection results and report as described in this Section.
- .3 Pre-Construction Submittals:
 - .1 Submit construction equipment list for major equipment to be used in this section prior to start of Work, as part of the Construction Work Plan.
 - .2 Submit records of underground utility locates, indicating: location plan of existing utilities as found in field and/or clearance record from utility authority.
 - .3 Submit analytical data demonstrating that sand and pit run gravel satisfies the BC CSR Sediment Quality Standards for sensitive sites and rock fill and cobble materials satisfy ARD ML criteria specified in Section 2.1, below.
 - .4 Submit analytical data demonstrating that materials that are to be used meet the Specifications, as presented on the design Drawings.
- .4 Construction Submittals:
 - .1 Submit results of in situ testing records to demonstrate that material Specifications for the sand and pit run gravel have been met in situ.

1.7 Quality Assurance

- .1 Inform the Departmental Representative and document in the Construction Work Plan the sources(s) of the proposed rock fill, pit run gravel, sand and cobble, provide analytical results for samples and access for Departmental Representative to conduct verification sampling and analysis at least 2 weeks prior to commencing production.
- .2 If, in the opinion of the Department Representative, material from a proposed source does not meet, or cannot reasonably be processed to meet grain-size or quality specifications (e.g., chemistry), an alternate source is to be located for material that meets specifications, at no additional cost to the contract.

BACKFILL

- .3 Should a change of the source of material be proposed during work, Contractor to advise the Departmental Representative and provide analytical results two (2) weeks in advance of the proposed change to allow for the Departmental Representative to conduct verification sampling and analysis, if required.
- .4 Acceptance of material does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.
- .5 Submit design and supporting data at least two (2) weeks prior to beginning the Stage 1 Work.
- .6 Design and supporting data submitted to bear stamp and signature of qualified Professional Engineer registered or licensed in Province of British Columbia, Canada.
- .7 Keep design and supporting data on site.

1.8 Waste Management and Disposal

- .1 Separate waste materials for reuse and recycling or off-site disposal in accordance with Section 01 74 19 - Waste Management and Disposal.

1.9 Existing Conditions

- .1 Examine Data Reports presented in Appendix A to these Specifications.
- .2 Existing buildings and surface features:
 - .1 Conduct, with Departmental Representative, condition survey of existing buildings and infrastructure, trees and other plants, lawns, guard rails, service poles, wires, rail tracks, pavement, survey bench marks and monuments which may be affected by Work.
 - .2 Protect existing buildings and surface features, as listed above, from damage while Work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.

Part 2 PRODUCTS

2.1 Materials

- .1 Backfill material quality:
 - .1 Sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious manner for use intended.

BACKFILL

- .2 Pit Run Gravel and Sand satisfies the BC Contaminated Sites Regulation Sediment Quality Standards for sensitive sites.
 - .3 Cobble and Rock Fill satisfies requirements for acid rock drainage (ARD) and metal leaching (ML) criteria:
 - .1 Chemical testing of Cobble and Rock Fill is required to assess the ARD and ML potential of the materials as this can negatively impact water quality. The following laboratory tests shall be performed by an independent, certified testing laboratory, hired by the Contractor:
 - .1 ARD Potential: Acid Base Accounting (ABA) testing.
 - .2 ML Potential: Multi-Element Analysis (ICP-MS).
 - .3 Shake Flask Extraction (SFE) testing.
 - .2 Guidelines for ARD/ML have been developed for mine sites in Canada and shall be used as general guidance in assessing ARD and ML potential for non-mining projects.
 - .3 Results of laboratory testing of metal leaching shall be compared, as a screening benchmark, with the British Columbia Water Guidelines (BCWG) criteria and the Canadian Council for Ministers of the Environment (CCME) guidelines for freshwater (maximum and 30-day) and marine aquatic life. If test results do not meet requirements for acceptance by these guidelines, then the Contractor shall submit a letter of professional opinion by an appropriately registered professional (BC P.Eng., P.Geo or R.P.Bio.) regarding suitability recommendation for use of material at the Dunn's Nook Work Site.
 - .4 All laboratory test results shall be submitted to the Departmental Representative at least two (2) weeks prior to importing material to the Work Site. If material is imported to the Work Site without provision of satisfactory testing that complies with the Specifications, the Contractor may have to remove the material at their own expense.
- .2 Cobble:
- .1 Cobble is to be from an approved source and is to be graded, round material, hard and durable, and free of any foreign soil or debris.
 - .2 Cobble is to conform to the gradation shown on the Drawings.
 - .3 Cobble is to be maintained free of contamination with other materials throughout the construction process.
 - .4 Finished surfaces of Cobble are to be within +/- 50 mm of the design grade measured normal to finishing grade, but not uniformly high or low.
 - .5 Cobble not in conformance with the requirements of this section is to be removed from the Project location with the expense of removal borne by the Contractor.

BACKFILL

.3 Rock Fill

- .1 Rock Fill is to be from an approved source and is to be well-graded, quarried rock, hard and durable, and free of any soil or debris.
- .2 The specific gravity (bulk saturated-surface-dry-basis), ASTM C127, is to be at least 2.60.
- .3 Rock Fill is to conform to the gradation shown on the Drawings.
- .4 In addition, neither the breadth nor the thickness of any single piece of material larger than 100 mm nominal size is to be less than one-third of its length. A maximum of 2.0 percent by weight of such pieces will be permitted.
- .5 Rock Fill is to be maintained free of contamination with other materials throughout the construction process.
- .6 Rock Fill is to be placed and compacted within the interstices of large rock to the plane of the existing slope. Machine compaction is to be conducted using the back side of the bucket of an excavator until resistance of rock fill acceptable to the Departmental Representative is achieved.
- .7 Finished surfaces of Rock Fill are to be within +/- 50mm of the plane of the existing slope, but uniformly high or low.
- .8 Rock Fill not in conformance with the requirements of this section is to be removed from the Project location with the expense of removal borne by the Contractor.

.4 Pit Run Gravel:

- .1 Pit Run Gravel is to be from an approved source and is to be graded round material, hard and durable, and free of any foreign soil or debris.
- .2 Pit Run Gravel is to be maintained free of contamination with other materials throughout the construction process.
- .3 Pit Run Gravel is to be placed and compacted in continuous horizontal lifts not exceeding 300 mm loose depth. Machine compaction of each lift is to be conducted by passing over material with a tracked machine for four (4) consecutive passes over the entire lift of material.
- .4 Pit Run Gravel is to conform to the gradation shown on the Drawings following placement and compaction (i.e., in situ).
- .5 Finished surfaces of Pit Run Gravel are to be within +/- 50mm of the design grade measured to finished grade, but not uniformly high or low.
- .6 Pit Run Gravel not in conformance with the requirements of this section is to be removed from the Project location with the expense of removal borne by the Contractor.

BACKFILL

- .5 Sand:
 - .1 Sand is to be from an approved source and is to be graded round material, hard and durable, and free of any foreign soil or debris.
 - .2 Sand is to be maintained free of contamination with other materials throughout the construction process.
 - .3 Machine compaction of sand is to be conducted by tamping (2 tamps) of each lift of Sand with the back-side of a cleanout bucket of a tracked excavator.
 - .4 Sand is to conform to the gradation shown on the Drawings following placement and compaction (i.e., in situ).
 - .5 Finished surfaces of sand are to be within +/- 25 mm of the design grade measured normal to finished grade, but not uniformly high or low.
 - .6 Sand not in conformance with the requirements of this section is to be removed from the Project location with the expense of removal borne by the Contractor.

2.2 Testing Frequency

- .1 The Contractor shall demonstrate that the materials used meet the Specifications and requirements outlined above by commissioning testing at an ISO 17025 accredited laboratory.
- .2 Test data for a minimum of three samples per material type shall be submitted to the Departmental Representative at least two (2) weeks prior to import of material to the Work Site, to confirm that the material meets the Specifications outlined in Section 2.1.1, above, and the gradation shown on the Drawings:
 - .1 As part of the Quality Control implemented by the Contractor, samples shall be collected and analysed by the Contractor at a frequency of one sample per 1,000 m³ of each material type imported to the Work Site.
- .3 Following placement and compaction of the Pit Run Gravel and Sand, in situ test data for samples collected using a grid with 25 m spacing between sample locations.

Part 3 EXECUTION

3.1 Temporary Erosion and Sediment Control

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

BACKFILL

- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent fill materials and/or permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 Site Preparation

- .1 Remove obstructions, from surfaces to be excavated within limits indicated.

3.3 Preparation/Protection

- .1 Protect existing features in accordance with applicable local regulations.
- .2 Keep excavations clean, free of standing water, and loose soil.
- .3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative approval.
- .4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
- .5 Protect buried services that are required to remain undisturbed.

3.4 Stockpiling

- .1 Stockpile fill materials in areas designated by Departmental Representative.
 - .1 Stockpile granular materials in manner to prevent segregation.
- .2 Protect fill materials from contamination.
- .3 Implement sufficient erosion and sediment control measures to prevent sediment release off construction boundaries and into water bodies.

3.5 Backfilling

- .1 Materials shall be placed and compacted to the satisfaction of the Departmental Representative.
- .2 Do not proceed with backfilling of excavations until the Departmental Representative has confirmed that these operations can take place, based on the results of confirmatory sampling undertaken by the Departmental Representative's Environmental Monitor.

BACKFILL

- .3 Areas to be backfilled to be free from debris and water.
- .4 Do not use backfill material which contains debris.
- .5 Place backfill material in uniform layers not exceeding 300 mm compacted thickness up to grades indicated on the Drawings. Compact each layer using four (4) passes of a tracked machine to provide nominal compaction, minimize settling and preventing over compaction, before placing succeeding layer.
- .6 Place backfill material in lifts to increase grade to the desired elevation; backfill material not to be placed on the existing banks above the desired elevation.
- .7 Backfilling around installations:
 - .1 Place bedding and surround material as specified elsewhere.
 - .2 Place layers simultaneously on both sides of installed Work to equalize loading. Difference not to exceed 0.3 m.

3.6 Restoration

- .1 Upon completion of Work, remove waste materials and debris in accordance to Section 01 74 19 - Waste Management and Disposal, trim slopes, and correct defects as directed by Departmental Representative.
- .2 No excavation within paved or asphalt areas is required or permitted unless approved in writing by the Departmental Representative. Should any disturbance or damage to such areas occur during the Works, the Contractor shall reinstate to original or better condition at no additional cost the Contract.
- .3 Clean and reinstate areas affected by Work as directed by Departmental Representative.
- .4 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.

END OF SECTION

WETLAND CREATION

Part 1 GENERAL

1.1 Description

- .1 Work under this Section to be performed by the Contractor includes the supply of all labour, equipment, supervision, materials, quality control, and other incidentals required for construction of wetland Work. This Section refers to the preparation of plant material for the Work and for Stage 2 of the Project which involves the supply, delivery and planting of the intertidal marsh area.
- .2 Wetland creation provided by the Contractor must fulfill the objectives of providing compensatory fish habitat as identified in the Fisheries Act Authorization. The purpose of the compensatory habitat construction is to offset effects of temporary loss of fish habitat and habitat substrate removal during implementation of the EGD Waterlot Remediation Project and remediation and compensatory habitat construction within Dunn's Nook.
- .3 The Contractor shall provide maintenance of plants for two (2) years subsequent to completion of initial planting to ensure that the warranty for plant material can be fulfilled, as described later in this Section. One hundred (100) percent survival of plant material is required.

1.2 Related Sections

- .1 Section 01 11 55 – General Instructions
- .2 Section 01 35 13.43 – Special Procedures for Contaminated Sites
- .3 Section 01 35 43 – Environmental Procedures
- .4 Section 01 45 00 – Quality Control
- .5 Section 01 74 19 – Waste Management and Disposal
- .6 Section 31 23 16 – Excavation
- .7 Section 31 23 23 – Backfill

1.3 Measurement and Payment Procedures

- .1 Upon Notice of Contract Award, the Contractor shall place the order for plant material that is required for the Work.
- .2 A number of key reference points on a control line (primary) for the establishment of the design control line will be provided by the Contractor to lay out the Work. The Contractor shall assume full responsibility for the alignment, dimensions and elevations of each and every part of the Work.

WETLAND CREATION

- .3 Calculations of quantities will be on per metre squared basis, as calculated from the design lines shown on the Drawings, adjusted to accommodate design changes and field fits approved by the Departmental Representative.
- .4 Payment for plant material preparation and supply will be on a per metre squared basis, as per the Unit Price Table item for Plant Material Preparation and Supply.
- .5 Payment for marsh planting will be on a per metre squared basis, as per the Unit Price Table item for Marsh Planting.
- .6 Payment for the two (2) years of plant maintenance shall be per the Unit Price Table item for Plant Maintenance (Year 1 and 2). Progress Payments for these items will be made based on an annual basis.

1.4 References

- .1 Refer to Design Drawings.
- .2 Refer to the Fisheries Act Authorization.
- .3 American National Standard Institute (ANSI)
- .4 Canadian Nursery Landscape Association (CNLA)
- .5 BC Landscape Standards (BCLNA)

1.5 Definitions

- .1 Refer to Section 01 11 55 (General Instructions) for all definitions related to this Contract.

1.6 Quality Assurance and Control

- .1 The Contractor shall provide, as part of the Quality Control Plan, a description of the procedures for quality assurance and quality control during the preparation of plant material, supply and planting, to meet the requirements of the Contract Documents. Refer also to Section 01 45 00 Quality Control.
- .2 The Contractor Quality Control Supervisor will provide the Departmental Representative construction records, quality control data, product sampling and testing data (by an independent party) and inspection reports (prepared by an R.P.Bio or P.Ag) for review to assess compliance with design specifications. The Contractor will provide access to the nursery responsible for the preparation and supply of plant material to the Departmental Representative and designees, for the purposes of undertaking inspections to assess conformance with inspection reports prepared by the Quality Control Supervisor.

WETLAND CREATION

- .3 Acceptance of Work will be determined by Departmental Representative from field and nursery inspections, review of inspection reports prepared by the Contractor, and assessment of compliance with specifications defined by the contract Drawings and the BCLNA Standard – 7th Edition for plant material and specifications for planting defined by this Section and the Design Drawings.
- .4 Plant material will be inspected at the nursery by the Departmental Representative prior to delivery of material to the location of wetland creation Work to assess compliance with inspection reports provided by the Contractor's Quality Control Supervisor. The Contractor shall arrange access for the Departmental Representative to conduct inspections of the plant material upon request.
- .5 Health and Safety Requirements: conduct the Work in accordance with Section 01 35 33 - Health and Safety Requirements.

1.7 Storage and Protection

- .1 Protect plant material from frost, excessive heat, wind, sun and drying during transportation.
- .2 Protect plant material from physical damage during transportation.
- .3 Immediately store and protect plant material which will not be immediately installed after arrival at the Work Site, in a manner approved by the Departmental Representative.
- .4 Protect stored plant material from frost, excessive heat, wind, sun, and drying during storage.

1.8 Scheduling

- .1 Commence the marsh planting no earlier than February 17, 2014 and complete the planting by March 14, 2014. The Contractor shall be responsible for selecting the optimum schedule for planting during this period to ensure survival rate of plants and may submit a request for extension to the schedule for planting, in writing, to the Departmental Representative, clearly stating the reasoning.
- .2 Notify the Departmental Representative at least fifteen (15) working days prior to shipment of plant material to the Work Site for planting.
- .3 Provide a schedule to the Departmental Representative including:
 - .1 Quantity and source of plant material.
 - .2 Departure (shipping) dates from nursery.
 - .3 Arrival dates at the Work site.
 - .4 Planting dates.

WETLAND CREATION

1.9 Warranty

- .1 For plant material the 12 months warranty period prescribed in the General Conditions is extended to 24 months.
- .2 End-of-warranty inspection will be conducted by the Departmental Representative.

Part 2 PRODUCTS

2.1 Plant Material

- .1 Plant material shall be in accordance with the specification defined in the Drawings and the BCLNA Standard – 7th Edition.
- .2 Plant material shall be well established and in high vigour and display late winter – early spring shoots appropriate to the stock specified according to species. The Contractor will provide access to the nursery responsible for the preparation and supply of plant material to the Departmental Representative, for the purposes of assessment conformance with quality assurance reports provided by the Contractor
- .3 Plants shall be planted at 0.35 m centre-to-centre spacing in the areas designated on the Drawings.
- .4 Type of root preparation, sizing, grading and quality shall comply with Canadian Standards for Nursery Stock. Stock type shall be plug; container type shall be 415D, with 77 cavities per block.
- .5 Plant material shall be free of disease, insects, defects or injuries and structurally sound with strong fibrous root system.
- .6 Plug stock shall be nursery grown from seed, exhibiting multiple stems and shoots, with strong fibrous root system throughout plug. The root system shall be sufficiently developed to make a readily extractable plug. Plugs with sparse or deformed root systems shall be culled out.

Part 3 EXECUTION

3.1 General

- .1 Upon notice of Contract Award the Contractor will place the order for plant material with a nursery that is experienced with providing the stock specified. The Contractor will provide written confirmation to the Departmental Representative confirming that the order has been placed.

WETLAND CREATION

- .2 Work under this section to be performed by the Contractor includes the supply of all labour, equipment, supervision, materials, quality control, and other incidentals required for construction of the wetlands restoration works.

3.2 Pre-Planting Preparation

- .1 Ensure that plant material is acceptable to the Departmental Representative prior to delivery to the Work Site.
- .2 Remove damaged roots and branches from plant material.

3.3 Planting

- .1 Plant material shall be placed in accordance with Specifications defined by the contract Drawings and the BCLNA Standard – 7th Edition for the stock specified according to species.
- .2 Plant material shall be placed in a manner that maintains grades and elevations of fill in accordance with specifications defined by the Drawings and Section 31 23 23 - Backfill. Disturbance to design grades and elevations shall be repaired to achieve conformance with specifications of the contract Drawings and Section 31 23 23 - Backfill.
- .3 Waste material generated by the execution of wetlands creation works shall be collected, transported and disposed off site in accordance with all applicable federal, provincial and municipal statutes.
- .4 Remove plants from plug blocks without damaging roots or shoots.
- .5 Dispose of plug blocks off site in accordance with all applicable federal, provincial and municipal statutes.

3.4 Maintenance During Warranty Period

- .1 From time of Substantial Performance of the Works to end of warranty period, the Contractor shall perform maintenance operations to ensure that plant material remains free of defects and achieves 100% survival during the warranty period. Maintenance operations shall include, but not be limited to:
 - .1 Remove wrack, wood and anthropogenic debris from plants.
 - .2 If grazing by waterfowl or other animals harms plant vigour, use appropriate control methods in accordance with federal, provincial and municipal regulations. Obtain product approval from Departmental Representative prior to application.
 - .3 Replace displaced plants, dead plants and plants displaying low vigour, per the requirements of the warranty.
 - .4 Conduct replacements in accordance with original planting specifications.

WETLAND CREATION

- .5 Following maintenance activities, provide written reports to Departmental Representative identifying:
 - .1 Maintenance work carried out.
 - .2 Development and condition of plant material.
 - .3 Preventative or corrective measures that may be required which are outside Contractor's responsibility.
- .6 The maintenance shall include supply of all labour, equipment, supervision, materials, quality control, and other incidentals necessary to conduct the maintenance.

END OF SECTION

**STOCKPILE DEWATERING AND
TRANSPORTATION**

1. PART 1 – GENERAL

1.1 Description

- .1 This section describes details regarding dewatering of materials to be disposed off-site and off-Site transportation of material from the Dunn's Nook Work Site to a permitted Treatment Facility and/or Disposal Facility, as defined in the Specifications. All materials being transported for off-site disposal shall be safe for transport (e.g., no free draining water shall escape from transport vehicle).
- .2 Descriptions of material to be excavated, dewatered and transported off-site for disposal (including sediment and debris) are provided in the appendices and reference materials attached to these Specifications. The Contractor shall review this information and use it to inform the Contractor's Work.
- .3 The Contractor is permitted to passively dewater excavated sediment (to remove suspended solids and excess water from the sediment such that it is safe for transport) that has been removed from within specified locations of the Dunn's Nook Work Site, as defined on the Drawings and described in these Specifications, provided the method for passive stockpiled sediment dewatering is implemented in a manner that is compliant with the water quality requirements presented in the EMP (Appendix B). The Contractor shall be responsible for reviewing and understanding these water quality requirements.
- .4 Passive sediment dewatering shall be permitted in the Contractor Staging and Laydown Area to the southeast of the Dunn's Nook Work Site, but must be done in a manner which will not cause dewatered effluent to enter directly onto the existing paved surface or to flow into the existing parking lot drainage collection system. The Contractor may also add an amendment to stabilize the material for transport. Prior to use of the amendment, the contractor shall obtain approval in writing from the Department Representative. The Contractor shall be required to construct a temporary Sediment Processing Area which is sealed (watertight) and provides a collection system for leachate and run-off. The Contractor shall treat collected water and test prior to discharge to ensure that the water meets the water quality requirements described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) and Section 01 35 43 (Environmental Procedures), and the requirements of the EMP. Water that does not meet these requirements is to be disposed off-site at a permitted Water Treatment and Disposal Facility, at no extra cost to the Contract.
- .5 Dewatering is not permitted during transportation of excavated sediment (contaminated or not contaminated) and debris from the Dunn's Nook Work Site to the off-site Treatment Facility and/or Disposal Facility.
- .6 This Work includes furnishing all labor, materials, tools, equipment, and incidentals required for excavation in support of the overall project as described in the Contract documents.

**STOCKPILE DEWATERING AND
TRANSPORTATION**

1.2 Measurement and Payment Procedures

- .1 Measurement for off-site transportation of excavated materials shall be by the in situ cubic metre (m³), based on comparison of the Contractor's pre-and post-construction surveys.
- .2 Payment for off-site transportation of excavated materials shall be by the in situ cubic metre (m³) under the Tender Items for Contaminated Sediment Transport, as described in the Unit Price Table.
- .3 Payment for dewatering of excavated materials shall be under the Tender Item for Contaminated Sediment excavation, under Section 31 23 16 Excavation.
- .4 Progress payment during completion transportation activities will be made by comparison of Contractor Pre-Construction and Progress Surveys, and final measurement and payment will be reconciled with Contractor's Post-Construction Survey comparison.
- .5 For the purposes of tender, the Contractor shall assume that all Contaminated Sediment and debris excavated for off-site transport to a permitted Treatment Facility and/or Disposal Facility, is classified for disposal as Industrial Land (IL+) material under the current regulations for classification and disposal of contaminated sediment.

1.3 Related Sections

- .1 01 11 55 - General Instructions
- .2 01 33 00 - Submittal Procedures
- .3 01 35 13.43 - Special Project Procedures for Contaminated Sites
- .4 01 35 43 - Environmental Procedures
- .5 01 45 00 - Quality Control
- .6 01 74 19 – Waste Management and Disposal
- .7 31 23 16 - Excavation

1.4 Definitions

- .1 Refer to Section 01 11 55 (General Instructions) for all definitions related to these Contract documents.

1.5 Background Reports

- .1 Refer to data reports presented in Appendix A of these Specifications.
- .2 Refer to EMP including Soil/Sediment and Water Control Management Plan presented in Appendix B to these Specifications.

STOCKPILE DEWATERING AND TRANSPORTATION

1.6 Regulations

- .1 Federal Fisheries Act
- .2 BC Environmental Management Act
- .3 British Columbia CSR
- .4 Local/Municipal Bylaws

1.7 Submittals

- .1 As part of the detailed Construction Work Plan, in accordance with Section 01 33 00 (Submittal Procedures), the Contractor shall prepare a section that describes the approach that shall be implemented for stockpile dewatering and transportation. Stockpile dewatering and transportation activities shall not begin until: 1) the Construction Work Plan has been reviewed and accepted by the Departmental Representative; and 2) agency-required notifications and review have been completed. At a minimum, the stockpile dewatering and transportation approach description shall contain the following information:
 - .1 Site Layout, including:
 - .1 Excavation area, dewatering location, water mitigation measures locations, truck transport locations and configuration for Work to be completed.
 - .2 Reference to the construction work schedule that identifies timing and sequencing for completion of stockpile dewatering and off-site transportation activities, as they relate to other major elements of the Works.
 - .3 Number, types, and capacity of equipment to be used, including names of trucks.
 - .4 Transportation routes to the off-site Treatment Facility(s) and Disposal Facility(s).
 - .5 Means and methods for completion of stockpile dewatering and transportation activities:
 - .1 Methods, procedures, and equipment to be used for all stockpile dewatering activities (including addition of amendments if proposed by the Contractor) of excavated material and debris as necessary.
 - .2 Methods, procedures, and equipment to be used for transportation of excavated sediment and debris to the off-site Treatment Facility and/or Disposal Facility, including procedures for preventing release of sediment and water during transportation. If necessary, this may include sealing of trucks.

STOCKPILE DEWATERING AND TRANSPORTATION

- .3 Methods, procedures, and controls to protect existing facilities against damage.
- .6 BMPs proposed by the Contractor and/or as required by the DND Standard Operating Procedures, and by the EMP during stockpile dewatering and transportation of excavated sediment and debris to the off-site Treatment Facility and/or Disposal Facility.
- .7 Debris Removal:
 - .1 Procedures and equipment for disposing of debris encountered during excavation operations.
 - .2 Procedures and equipment for offloading, stockpiling (if necessary), transport, and disposal of debris.
- .2 Daily Record Keeping: As part of Daily Record Keeping, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall keep a daily record of the stockpile dewatering related activities and off-site disposal activities, including number of truck transportation trips to the off-site Treatment Facility and/or Disposal Facility, estimated volume of excavated materials and debris disposed, Progress Surveys and a summary of other relevant details of the work. These daily records shall be submitted to the Departmental Representative on request and shall be included in the Weekly Construction Report. Daily records shall be signed by the Contractor's site superintendent and Quality Control Manager.
- .3 Weekly Reporting: As part of the Weekly Construction Report, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall summarize the week's Work activities and submit the report to the Departmental Representative the following Monday morning. The Weekly Construction Report shall identify Work completed to date, anticipated Work to be completed in the present week and present the latest Progress Survey and Record Drawings. The Weekly Construction Report shall be signed by the Contractor's site superintendent and Quality Control Manager.

1.8 References

- .1 NOT USED

1.9 Regulatory Requirements

- .1 See Section 01 11 55 (General Instructions) for regulatory requirements pertaining to this Contract.

**STOCKPILE DEWATERING AND
TRANSPORTATION**

1.10 Barges and Tugs

- .1 No barge transportation from or to the Dunn's Nook Work Site is permitted, however the Contractor may use barges for transportation of materials at off-site locations. Barges and tugs that may be employed for the transportation of materials to and from off-site locations used by the Contractor shall be of Canadian registry, make, or manufacture, or must receive certificate of qualification from Industry Canada, Marine Directorate, and this certificate shall accompany the Construction Work Plan.

1.11 Site Information

- .1 Character of Materials:
 - .1 Subsurface investigations were performed to characterize the physical and chemical quality of the excavated material. Detailed results from geotechnical and chemical testing of the sediments are provided in the attached appendices and reference materials.
 - .2 The Contractor shall satisfy itself regarding the nature of materials present at the site prior to Tender. The type of materials encountered at the Dunn's Nook Work Site may vary from the conditions described in the attached appendices and reference drawings. Variations in the type of materials encountered may occur that do not differ materially from those indicated in these Specifications, and if encountered, will not be considered as basis for claims due to differing Dunn's Nook Work Site conditions.
 - .3 Hard material in its natural state is defined as material requiring blasting, and includes boulders or fragments too large to be removed in one piece by the excavation equipment. Potential riprap or rock fill may be encountered during the Works, which can be removed in one piece by the excavation equipment. No blasting is required as part of this Contract.
 - .4 Excavated materials and debris shall be transported and disposed of at an off-site Treatment Facility and/or Disposal Facility, as defined in these Specifications, that has been accepted by the Departmental Representative.

**STOCKPILE DEWATERING AND
TRANSPORTATION**

2. PART 2 – PRODUCTS

2.1 NOT USED

3. PART 3 – EXECUTION

3.1 Sequencing

- .1 Stockpile dewatering and transportation sequencing requirements are discussed in Section 01 11 55 (General Instructions). This section describes more detailed sequencing considerations related to these activities.
- .2 Sediment processing, dewatering and transportation activities shall not begin until the Departmental Representative has completed review and accepted the Construction Work Plan.

3.2 Sediment Processing

- .1 The Contractor shall provide detailed description, photographs, and drawings as necessary describing the means and methods for sediment processing to ensure that the material is suitable for transport as part of the Construction Work Plan.
- .2 If necessary, the Contractor shall undertake sediment dewatering in the Contractor Staging and Laydown Area, in a Contractor constructed temporary Sediment Processing Area, to ensure that the material is suitable for transport off-site to a permitted Treatment Facility and/or Disposal Facility. The Contractor shall not keep excavated sediment in the Contractor Staging and Laydown Area for more than 48 hours. The 48 hour period will commence once the first load of material is deposited in the Sediment Processing Area.
- .3 The Contractor may select to add amendment to stabilize the sediment for transport but must provide a proposed list of compounds to be used and rates of application, to the Department Representative for prior acceptance.
- .4 The temporary Sediment Processing Area and associated facilities that may be provided by the Contractor shall be configured such that free drainage of excavated sediment water (i.e., leachate or run-off) is collected from the facility, treated and discharged behind the silt curtain in Esquimalt Harbour. All effluent from sediment processing shall pass through a filter material prior to discharge to Esquimalt Harbour such that suspended solid and other contaminant concentrations meet required criteria for discharge to marine waters, as per the EMP (Appendix B).
- .5 The Contractor shall be responsible for ensuring that all collected water is filtered prior to discharge and that no surplus water is discharged to the parking lot or related drainage systems.

STOCKPILE DEWATERING AND TRANSPORTATION

- .6 Dunn's Nook Work Site dewatering activities shall be completed using the procedures described in these Specifications, and the requirements of the EMP. If water quality criteria exceedances are observed during completion of dewatering activities, the Contractor shall be required to modify the dewatering or treatment process or cease dewatering activities at no additional cost to the Departmental Representative.

It is the Contractor's responsibility to understand the dewatering requirements and costs to provide sufficient dewatering for the Contractor's identified Treatment Facility and/or Disposal Facility and include that work in the applicable Tender price.

3.3 Transportation

- .1 The Contractor shall transport Contaminated Sediment to the off-site permitted Treatment Facility and/or Disposal Facility according to the means and methods described in the Construction Work Plan. Deviations from the Construction Work Plan must be accepted by the Departmental Representative prior transportation.
- .2 The Contractor shall ensure that the dewatered sediment trucked from the Dunn's Nook Work Site does not result in effluent containing water discharging from the truck during transport to the off-site permitted Treatment Facility and/or Disposal Facility.
- .3 Excavated sediment and debris shall be transported directly from the Dunn's Nook Work Site to the off-site permitted Treatment Facility and/or Disposal Facility identified in the Construction Work Plan, and as accepted by the Departmental Representative.
- .4 Transportation of sediment and debris to the off-site permitted Treatment Facility and/or Disposal Facility shall comply with federal, provincial, and local regulations, permit conditions, and all requirements of the EMP regarding these activities.

3.4 Water Quality Criteria Compliance

- .1 The water quality monitoring requirements are described in the EMP and are attached as Appendix B to these Contract documents.
- .2 In accordance with the EMP, the Departmental Representative or the Departmental Representative's Environmental Monitor will conduct water quality monitoring, for quality assurance, during completion of excavation and dewatering activities. The Contractor is responsible for complying with all water quality criteria as defined in the EMP, and shall conduct its own water quality monitoring as needed to provide quality control of the Contractor's Work. Water quality monitoring requirements are presented in the EMP and are also described in Section 01 35 13.43 (Special Project Requirements for Contaminated Sites) and Section 01 35 43 (Environmental Procedures).

**STOCKPILE DEWATERING AND
TRANSPORTATION**

- .3 The Contractor shall describe in its Construction Work Plan and/or EPP what means, methods, and procedures will be used to prevent water quality criteria exceedances, and what contingency actions shall be taken to restore compliance with water quality criteria should water quality exceedances occur during completion of excavation, dewatering and transportation activities.

Delays caused by complying with water quality criteria shall not be cause for additional compensation to the Contractor.

END OF SECTION