Colwood Jetties Remediation Project

Design

Issued for Tender

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(for specification content within Anchor QEA scope and responsibility)

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APPENDIX A – DND REFERENCE DOCUMENTS AND GUIDELINES

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APPENDIX E – FSE DIRECTIVES

MARPAC, 2013a. Formation SEMS Manual Directive E2 – Environmental and Archaeological Management of Land Alteration Activities. November 2013.

MARPAC, 2013b. Formation SEMS Manual Directive SE5 – Spill Response. October 2013.

APPENDIX F – EXAMPLE CONTRACTOR REPORTS

Archaeological Artifacts Database Report (Example). July 8, 2016.

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END OF SECTION

1. PART 1 – GENERAL

1.1 Description of Work

.1 The Department of National Defence (DND) and the Contracting Authority (Public Works and Government Services Canada [PWGSC]) require contaminated sediment to be remediated within the D Jetty and F/G Jetty Work Site (Work Site) as part of the Colwood South Remediation Project and F/G Jetty Optimization Study Project. Collectively, these projects are referred to as the Colwood Jetties Remediation Project. The work is located in Esquimalt Harbour on Vancouver Island, British Columbia (BC), within DND's Canadian Forces Base Esquimalt (CFB Esquimalt) – Colwood.

.2 CFB Esquimalt is an operational base. The Contractor's work shall be conducted in a manner that does not interfere with CFB Esquimalt operations.

.3 PWGSC will designate a representative (the Departmental Representative) to advise, coordinate, and monitor the work on behalf of DND.

.4 The project is not a standard dredging and disposal project. Dredge material within the Work Site is contaminated with various chemicals of concern, and may contain debris, Suspected Unexploded Explosive Ordnance (UXO), and historically, archaeologically, architecturally, or paleontologically significant structures, sites, or things. The Contractor shall use extra care to conduct its work in a manner that is suitable for environmental cleanup and not in a production dredging manner. The Contractor shall conduct its work in a manner to minimize, to the extent practicable, resuspension and redistribution of contaminated sediment, and to comply with environmental protection requirements in these Specifications and any applicable permit conditions. Grounding of the Contractor's equipment during performance of the work is prohibited.

.5 The Contractor shall carefully plan its means, methods, work schedule and shifts, and number of equipment and crews necessary to complete the work in the specified construction duration. The Contractor shall identify in its Construction Work Plan and Project Schedule how it intends to complete all work within the construction duration by identifying construction sequencing, number of work shifts per day, and whether multiple equipment rigs and crews will be utilized. Achieving completion of all dredging and Backfill Material placement work by March 31, 2017, and Substantial Completion by May 30, 2017, is critical to CFB Esquimalt operations and the Contractor's best efforts shall be used to comply with this Specification completion schedule requirement.

.6 The Work Site comprises three (3) Zones: The F/G Jetty Zone, the D Jetty North Zone, and the D Jetty East Zone, as shown on the Drawings.

.7 Work under this Contract covers temporary structure removal, relocation and reinstatement; dredging of contaminated sediments and encountered Dredge Debris; dewatering of dredge material; treatment of dredge effluent (as

necessary); in-water transportation (to the Contractor Off-Site Offload Facility); dredge material, Dredge Debris, and Demolition Debris offloading; temporary off-site stockpiling (if proposed); material processing of all dredge material at a Processing Facility to segregate Suspected UXOs out of the dredge material; treatment of contaminated sediment at a Treatment Facility (if proposed); upland transportation; disposal of dredge material, Dredge Debris and Demolition Debris at a Disposal Facility; importing and placing Backfill Material; and set up and maintenance of temporary facilities to support the above work.

.8 The Contractor shall provide all supervision, labour, materials, supplies, tools, equipment, hoisting, transportation, receiving, handling, storage, quality control, environmental protection, surveying, inspection, monitoring, and all other services necessary for the proper execution of the work. The principal items of the work are summarized as follows, but do not represent the full list of work required:

.1 Contractor and public health and safety responsibility.

.2 Environmental and cultural heritage protection responsibility, including protection of structures, sites, or things that may be valued for their historical, archaeological, architectural, and paleontological significance as determined by the Archaeological Monitor and accepted by the Departmental Representative.

.3 Complying with all submissions and documentation requirements.

.4 Conducting Pre-Construction, Progress, and Post-Construction Surveys.

.5 Staging of materials and equipment. Staging of Contractor materials brought in from off site to complete the work may be conducted either within the On-Site Staging Areas shown on the Drawings, on barges within the Work Site, or at an off-site location reviewed and accepted by the Departmental Representative.

.6 Temporary demolition, relocation, and storage of the fender system and associated piles (within the D Jetty North Zone), as shown on the Drawings, and transportation and disposal of Demolition Debris at a Disposal Facility.

.7 Temporary electrical (utility) disconnection, demolition, relocation, and storage of the pivot ramp, gas float, and locator piles (within the F/G Jetty Zone), as shown on the Drawings, and transportation and disposal of Demolition Debris at a Disposal Facility.

.8 Procurement, installation, operations, and maintenance of silt curtain systems to comply with any applicable permit conditions and water quality requirements, as described in the Environmental Management Plan (EMP) during completion of dredging activities.

.9 Contaminated sediment removal from within the Work Site using mechanical dredging techniques (as per the Specifications and Drawings),

including miscellaneous Dredge Debris from the seabed, dredge material dewatering (as necessary), dredge material effluent treatment (as necessary), and in-water transportation of dredge material and Dredge Debris to the Contractor Off-Site Offload Facility.

.10 Setup, operations, and maintenance of the Contractor Off-Site Offload Facility.

.11 Setup, operations, and maintenance of the Processing Facility.

.12 Offloading, stockpiling (as necessary), and dewatering of dredge material, Dredge Debris and Demolition Debrisat the Contractor Off-Site Offload Facility; treatment (if proposed) of contaminated sediment at Treatment Facility; material processing of all dredge material at the Processing Facility to segregate Suspected UXO out of the dredge material; dredge material effluent treatment (as necessary); and upland transportation and disposal of dredge material, Dredge Debris, and Demolition Debris at a Disposal Facility.

.13 Requirements for segregating all Suspected UXO from the dredge material are contained in this section, and in Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal).

.14 Importing and placing Backfill Materials, as shown on the Drawings, including Structural Backfill Type A and Type B, General Backfill, Underpier Cover, and Residuals Management Cover (RMC).

.15 Reconstruction and reinstatement of the D Jetty North Zone fender system, in same condition, and at same location as shown on the Drawings.

.16 Reinstatement of the F/G Jetty Zone pivot ramp, gas float, and locator piles, in same condition, and at same location as shown on the Drawings.

.17 On-Site Staging Area(s) cleanup, and Off-Site Staging and Stockpile Area cleanup at the Contractor Off-Site Offload Facility.

.18 Work Site restoration, decommissioning of temporary facilities, and demobilization, as applicable.

.19 Contractor Off-Site Offload Facility restoration, decommissioning of temporary facilities, and demobilization.

.9 All dredging, Backfill Material placement, structure demolition, relocation, and reinstatement activities shall be conducted from the waterside. No work shall be conducted from the shoreline or jetty structures.

.10 No dredge material, Dredge Debris, Demolition Debris, or any other item removed or relocated from the Work Site may be placed, stockpiled, or stored on the jetties or in any upland area at the Work Site, unless reviewed and accepted by the Departmental Representative.

.11 All transport of dredge material, Dredge Debris, and Demolition Debris from the Work Site to the Contractor Off-Site Offload Facility shall be performed by barge.

.12 Historically, archaeologically, architecturally, or paleontologically significant structures, sites, or things may be encountered during completion of the work as part of this Contract.

.13 The Contractor becomes the owner of, and is responsible for, any soil, sediment, Dredge Debris, Demolition Debris, effluent, or other material once it is removed, dredged, or excavated and loaded on a vehicle, barge, or other vessel for transport, with the exception of historically, archaeologically, architecturally, or paleontologically significant structures, sites, or things or Suspected UXO. Historical, archaeological, architectural, or paleontological significant structures, sites, or things and Suspected UXO remain the property of Canada.

.14 The Coasting Trade Act shall apply to all vessels utilized by the Contractor during completion of the work as part of this Contract.

.15 The Contractor shall assume for Tendering purposes that all waste materials (i.e., dredge material, Dredge Debris, and Demolition Debris) will be properly disposed of as IL+ material (as defined by British Columbia Contaminated Sites Regulations [BC CSR]) at a Disposal Facility. Recycling or beneficial re-use of the waste materials is prohibited. If the Contractor elects to propose that some of the waste materials be reclassified and disposed as a non-IL+ material at a Disposal Facility, with Departmental Representative acceptance of reclassified material, that is at the Contractor's risk and there will be no extra cost to the Contract if materials are not accepted as non-IL+ material at a Disposal Facility.

.16 The work will require a planned, careful, and flexible approach by an experienced Contractor to ensure that the D Jetty North Zone and F/G Jetty Zone structures are carefully relocated and reinstated, all dredge material and encountered Dredge Debris is dredged, transported, processed, and disposed of in a proper manner, that in-water placement of Backfill Materials is performed according to the methods described in these Specifications in order to maintain environmental quality, and all dredging and Backfill Material placement work is completed by March 31, 2017, and Substantial Completion by May 30, 2017.

.17 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 the Departmental Representative. To fully comprehend the work, the Specifications shall be read in conjunction with the Drawings, the Unit Price Table included in the Tender documents, the EMP, site information (including reference drawings, documents, surveys, and other data), and other Contract documents.

.18 The Contractor shall provide, prior to mobilization, certifications of marine vessels by a certified marine architect, including certified barge displacement

charts for haul barges to be used for tracking of dredge material, Dredge Debris and Demolition Debris tonnage.

.19 All work must comply with environmental guidelines of the EMP and the associated Water Quality Monitoring Plan (WQMP), applicable Laws and Regulations, and any permit requirements.

1.2 Contract Documents

.1 The Contract documents, Drawings, and Specifications are intended to complement each other, and to provide for and include all elements necessary for the completion of the work.

.2 Drawings are, in general, diagrammatic and are intended to indicate the scope and general arrangement of the work.

1.3 Definitions

.1 Archaeological Monitor. The Contractor shall employ an Archaeological Monitor to supervise monitoring for structures, sites, or things that may be valued for their historical, archaeological, architectural, and paleontological significance as determined by the Archaeological Monitor with acceptance by the Departmental Representative. The Archaeological Monitor must be a Registered Professional Archaeologist and shall employ First Nations representatives to assist in the archaeological monitoring. The Archaeological Monitor shall be present full time during dredge material segregation activities at the Processing Facility to examine the processed sediments and collect any observed archaeological materials, including things that may be valued for their historical, archaeological, architectural, and paleontological significance. The Archaeological Monitor will also be on call for Chance Find Procedures, Archaeological in the event that structures, sites, or things of historical, archaeological, architectural, and paleontological significance are identified during dredging and other in-water activities at the Work Site.

.2 Backfill Material. Backfill Material is defined as material that will be placed in specified locations as shown on the Drawings. Five types of Backfill Material shall be used for the project, as follows:

.1 General Backfill. The material type requirements are identified in Section 35 37 10 (Material Placement). This material will be placed at the Targeted Placement Elevations as shown on the Drawings throughout the dredging extents in the F/G Jetty Zone but outside the Structural Backfill Type A placement extents. Its purpose is to return the elevations to within 0.3 m of the pre-construction seabed elevations. This material includes a $\pm$ 0.15 metre (m) Payable Vertical Placement Tolerance.

.2 Residuals Management Cover. The material type requirements are identified in Section 35 37 10 (Material Placement). This material will be placed at a Targeted Placement Thickness of 0.3 m within the D Jetty

North Zone and East Zone as directed by the Departmental Representative, and within the F/G Jetty Zone as shown on the Drawings. Its purpose is to accelerate the natural recovery process within these areas. This material includes a ± 0.15 m Payable Vertical Placement Tolerance.

.3 Structural Backfill Type A. The material type requirements are identified in Section 35 37 10 (Material Placement). This material will be placed at the variable Minimum Required Elevations as shown on the Drawings in the area of the fender system (D Jetty North Zone) and at the Targeted Placement Elevations within the area of the gas float structures (F/G Jetty Zone) prior to their reinstatement in order to provide structural support. This material includes a 0.3 m non-payable overplacement allowance.

.4 Structural Backfill Type B. The material type requirements are identified in Section 35 37 10 (Material Placement). This material will be placed in the D Jetty East Zone to a Minimum Required Thickness of 0.5 m as shown on the Drawings in order to provide structural support. This material includes a 0.3 m non-payable overplacement allowance.

.5 Underpier Cover. The material type requirements are identified in Section 35 37 10 (Material Placement). This material will be placed underpier in the D Jetty North Zone to the Targeted Placement Thickness of 0.5 m as shown on the Drawings. Its purpose is to mix with underpier contaminated sediments that are left in place due to access constraints. This material includes a ± 0.15 m Payable Vertical Placement Tolerance.

.3 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 placed for final permanent disposal, 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. This documentation shall be provided by the Contractor to the Departmental Representative upon receipt from the Disposal Facility. The Contractor shall be required to include with this documentation all scale tickets from the Disposal Facility.

.4 Certificate of Treatment (if proposed). 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 and treatment type, a description of the date and quantity for each shipment of material received, total quantity of material received, date 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. This documentation shall be provided by the Contractor to the Departmental Representative upon receipt from the Treatment Facility. The Contractor shall be required to include with this documentation all scale tickets from the Treatment Facility.

Chance Find Procedures, Archaeological. During construction activities, the Contractor may encounter structures, sites, or things that may be valued for their historical, archaeological, architectural, and palaeontological significance. If intact or disturbed historical, archaeological, architectural, or palaeontological deposits are encountered (excluding unidentifiable metal, ceramic, brick, and glass fragments), the Contractor must stop construction in the immediate vicinity and contact the Departmental Representative for direction. Photographs of observed pre-contact and historical materials must be emailed to the Departmental Representative to assist in determining their significance. Based on a telephone description of the incident, it may be decided that there are no further concerns, allowing construction to continue as planned. If warranted, a field visit by the Departmental Representative or Departmental Representative's designee will be completed to determine the significance of the item(s).

If human remains are encountered during construction, the Contractor will immediately stop construction in the vicinity of the remains and contact the Departmental Representative who will contact the local policing authority for further guidance. The local policing authority or the Departmental Representative will advise on further action, including notification of the Office of the Coroner. If it is determined that the remains are archaeological in nature, First Nations representatives will be invited to attend, and an appropriate procedure for handling the remains will be negotiated. The Contractor should be aware that removal of human remains and subsequent reburial may involve certain ceremonies or procedures that could lead to a Departmental Representative-directed stoppage of work.

.5 Construction Work Plan. The Construction Work Plan is a pre-construction submittal that includes the Contractor means and methods during completion of the work as part of this Contract. The Contractor shall prepare the Construction Work Plan and submit to the Departmental Representative for review. The Construction Work Plan must be reviewed and accepted by the Departmental Representative prior to the start of work. The Construction Work Plan must include the detailed construction work schedule.

.6 Contingency Re-Dredge Decision Duration. Contingency Re-Dredge Decision Duration is defined as the period of time between the Departmental Representative's acceptance of the Required Dredging Post-Construction Survey and the Departmental Representative's direction to the Contractor as to whether Contingency Re-Dredging activities will be required. The Contractor will not be paid for this decision duration and shall account for this time in the Tendered Price for DREDGING, BARGE DEWATERING, AND IN-WATER TRANSPORTATION.

.7 Contingency Re-Dredge Volume. Contingency Re-Dredge Volume is the volume of all contaminated sediments that may require removal as part of residuals contingency re-dredging and missed inventory contingency re-dredging, as identified by the Departmental Representative, and that will be paid for within the

specified tolerance and Payable Overdredge Allowance identified in these Specifications and shown on the Drawings.

.8 Contingency Re-Dredging. Contingency Re-Dredging shall be additional dredging as directed by the Departmental Representative after Required Dredging activities have been completed, and based on Departmental Representative-conducted confirmation sampling and testing results. Any need for Contingency Re-Dredging, as well as the horizontal and vertical limits for Contingency Re-Dredging, will be determined by the Departmental Representative.

.1 Missed Inventory Contingency Re-Dredging Targeted Cut Thickness: The Targeted Cut Thickness for missed inventory Contingency Re-Dredging activities shall be 0.5 m below the post-Required Dredging surface, and will be directed by the Departmental Representative.

.1 Missed Inventory Contingency Re-Dredging Payable Overdredge Allowance: The Missed Inventory Contingency Re-Dredging Payable Overdredge Allowance shall be 0.15 m below the Missed Inventory Contingency Re-Dredging Targeted Cut Thickness for Missed Inventory Contingency Re-Dredging.

.2 For Tendering purposes, only one round of Contingency Re-Dredging shall be conducted.

.2 Residuals Contingency Re-Dredging Targeted Cut Thickness: The Targeted Cut Thickness for Residuals Contingency Re-Dredging shall be 0.3 m below the post-Required Dredging surface, as directed by the Departmental Representative.

.1 Residuals Contingency Re-Dredging Payable Tolerance: The Residuals Contingency Re-Dredging Payable Tolerance shall be 0.15 m below the Targeted Cut Thickness for Residuals Contingency Re-Dredging.

.2 For Tendering purposes, only one round of Contingency Re-Dredging shall be conducted.

.9 Contractor Off-Site Offload Facility. The Contractor Off-Site Offload Facility is defined as the Contractor-provided off-site upland site where dredge material, Dredge Debris, and Demolition Debris that have been generated from the Work Site are offloaded, stockpiled (if applicable), dewatered (if applicable), segregated (if not segregated on a floating platform), treated (as applicable), rehandled, and transferred onto trucks or rail cars (if rail access is available) for disposal at a Disposal Facility. The facility shall be operated in compliance with Laws and Regulations or equivalent United States regulations if the facility is located in the United States.

.10 D Jetty and F/G Jetty Work Site (Work Site). The D Jetty and F/G Jetty Work Site (collectively referred to as the Work Site) is defined as the boundaries within which all work will be completed, as shown on the Drawings.

.11 D Jetty East Zone. The D Jetty East Zone is defined as the area within the D Jetty Zone along the East Berth, as shown on the Drawings.

.12 D Jetty North Zone. The D Jetty North Zone is defined as the area within the D Jetty Zone along the North Berth, as shown on the Drawings.

.13 Daily Construction Report. The Daily Construction Report will be submitted by the Contractor to the Departmental Representative on a daily basis and will document all activities associated with the work that are completed each day. Specific submittal requirements for the Daily Construction Report are described in the individual Specification sections.

.14 Demolition Debris. Demolition Debris shall be defined as incidental material arising as a result of selective site demolition or structure demolition activities, as described in Section 02 41 13 (Selective Site Demolition) and Section 02 41 16.01 (Structure Demolition). Demolition Debris shall be disposed of at a Disposal Facility accepted by the Departmental Representative.

.15 Departmental Representative. The Departmental Representative is the person designated by Canada to advise, coordinate, and monitor the work on behalf of DND, in accordance with the General Conditions of the Contract.

.16 Disposal Facility. An existing facility located in Canada or the United States where waste materials are 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 a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a Facility Regulator for the handling and disposal of contaminated material, and operate in accordance with federal, provincial, territorial, state, and/or municipal regulations and guidelines for the disposal of sediment or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands, or any other land use specified in the BC CSR. The Disposal Facility must be accepted by the Departmental Representative prior to use. In carrying out the work under the Contract, the facility must comply with Laws and Regulations, including complying with any enforcement order or direction of any nature or kind under the Laws and Regulations related to the work under the Contract. Disposal of dredge material, Dredge Debris, and Demolition Debris must be performed at a Disposal Facility.

.17 Dredge Debris. Any solid waste materials other than sediment excavated as part of the dredging operations, such as pile stubs, logs, wire, cable, steel bands, anchors, lumber, trash, concrete, etc. Dredge Debris excludes Demolition Debris. Dredge Debris shall be disposed of at a Disposal Facility accepted by the Departmental Representative. The cost for effort to remove, handle, and dispose of Dredge Debris shall be considered incidental to the work and shall be included in the Tender Price for DREDGING, BARGE DEWATERING, AND IN-WATER TRANSPORTATION.

.18 Dredge Pay Volume. Dredge Pay Volume is the calculated quantity of in situ dredge material removed by the Contractor that will be paid for. The Dredge Pay Volume will be determined by calculating the total amount of in situ cubic metres of material dredged (based on comparison of Pre-Construction and Post-Construction Surveys), minus Excessive Dredging.

.19 Dredge Prism. The Dredge Prism is the area defined by the horizontal limits of dredging shown on the Drawings that the Contractor is required to dredge. The Dredge Prism includes the area within the defined toe of cuts and the Side Slopes. The Contractor shall not directly remove material from outside of the Dredge Prism. The Contractor shall remove Slough Material that falls into the Dredge Prism and shall account for this volume in the applicable Tendered Prices.

.20 Dredge Residuals. Dredge Residuals are defined as contaminated sediment that are generated and suspended during dredging activities and that settle to the surface of the seabed.

.21 Dredge Unit. A Dredge Unit (DU) is a specified area, as shown on the Drawings, that is assigned a minimum elevation or Targeted Cut Thickness for Required Dredging.

.22 Environmental Management Plan. 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 will be managed during implementation of the remediation 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). Because water quality management is a significant environmental protection component of the project, a Water Quality Monitoring Plan has been prepared and is included as part of the EMP. The Contractor shall adhere to the EMP and Departmental Representative-accepted EPP. In the event of a discrepancy between the EMP and provisions of federal, provincial, state, municipal legislation, regulations or by-laws, the more stringent provisions resulting in the higher protection of the environment and lower discharge of contaminants will prevail. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.23 Environmental Protection. Prevention/control of pollution and habitat or environment disruption 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.

.24 Environmental Protection Plan. 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

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, and any other environmental requirements under Laws and Regulations. Although provincial and municipal Laws and Regulations do not apply on federal lands, the Contractor, as a "good neighbor", will make reasonable efforts to respect regulations, local by-laws, and rules at the Work Site. This plan shall address all construction activities. The EPP must be submitted to and accepted by the Departmental Representative prior to the start of work described in Section 01 33 00 (Submittal Procedures).

.25 Excessive Dredging. Excessive Dredging is defined as material removed outside the Dredge Prism or below the Payable Overdredge Allowance, as described in these Specifications, and as shown on the Drawings. Excessive Dredging will not be paid for. The Contractor shall take extra care to prevent Excessive Dredging to avoid potentially adversely impacting slope and/or structural stability. The Contractor shall repair any damage caused by Excessive Dredging at no extra cost to the Contract. If additional backfill material is required to be placed in areas of Excessive Dredging, the Contractor shall purchase and place the additional Backfill Material at no extra cost to the Contract.

.26 Excessive Overplacement. Backfill Material placed either outside of the Dredge Prism limits or above the established Non-Payable Overplacement Allowance and upper Payable Vertical Placement Tolerance is Excessive Overplacement and will not be paid. The Departmental Representative reserves the right to require the Contractor to remove Excessive Overplacement material, at no additional expense to the Departmental Representative.

.27 Facility Regulator. The Processing Facility, Treatment Facility (if applicable), and Disposal Facility must hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a Facility Regulator for the handling, processing, treatment, or disposal of contaminated material. The appropriate Facility Regulator for a Treatment Facility (if applicable) and Disposal Facility is based on the following types of facilities:

.1 For facilities within provincial or territorial jurisdiction, the relevant provincial or territorial ministry.

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

.3 For facilities on First Nations reserve land in Canada subject to the First Nation Land Management regime, the relevant First Nation Council. In addition, a Qualified Professional must certify that the facility is appropriate for the relevant contaminated material.

.4 For facilities in the United States of America (prohibited for the Processing Facility), either or both the Environmental Protection Agency and the relevant State, as appropriate.

The appropriate Facility Regulator for a Disposal Facility is based on the following types of facilities:

1. For facilities within provincial jurisdiction, the relevant provincial ministry.
2. For facilities on First Nations reserve land in Canada not subject to the First Nation Land Management regime, Indigenous and Northern Affairs Canada.
3. For facilities on First Nations reserve land in Canada subject to the First Nation Land Management regime, the relevant First Nation Council. In addition, a Qualified Professional must certify that the facility is appropriate for the relevant contaminated material.

.28 F/G Jetty Zone. The F/G Jetty Zone is defined as the area within the Work Site at F/G Jetty where remedial work will be conducted, and is shown on the Drawings.

.29 Health and Safety Plan. The Contractor shall submit a project-specific Health and Safety Plan that covers all health and safety considerations for Contractor staff, consultants, and other subcontractors to PWGSC 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 work. 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.

.30 Horizontal Datum. Universal Transverse Mercator (U.T.M.) North American Datum (NAD) 83, in metres (m).

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

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

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

.3 All time spent between the encounter of the Suspected UXO or item of potential historical, archaeological, architectural, and paleontological significance and the determination of its safety risk or significance.

.4 Inclement weather.

.5 CFB Esquimalt operations taking precedence over Contractor activities outside of the Work Site.

.6 Relocating equipment in the performance of work.

.32 Laws and Regulations. All laws, regulations, by-laws, orders, codes, rules, standards, guidelines, or other lawful requirements of any federal, provincial, municipal, state, local, or other government authority.

.33 Missed Inventory. Missed Inventory is defined as contaminated sediments that are not removed as part of Required Dredging, as identified by results of Canada's confirmation sampling and testing results.

.34 Non-Payable Overplacement Allowance. The Non-Payable Overplacement Allowance is the maximum elevation or thickness of Backfill Material above the Required Minimum Placement Elevation or Required Minimum Placement Thickness that is allowable. The Non-Payable Overplacement Allowance is 0.15 m for Structural Backfill Type A and 0.3 m for Structural Backfill Type B. The Contractor shall select its means and methods to conduct its placement work to stay within the Non-Payable Overplacement Allowance limits to the extent practicable. Material placed within the Non-Payable Overplacement Allowance will not qualify for separate payment and the Contractor shall account for Non-Payable Overplacement Allowance and any potential Excessive Overplacement volume due to its means and methods in its Tender Prices.

.35 Obstruction(s). Rock pieces, wood, concrete, metal items, chains, wire ropes, drill rods, and other non-soil materials that are encountered fully embedded within the sediments below seabed and that are demonstrated to the Departmental Representative's satisfaction to materially affect the pile driving, pile re-driving, or pile extraction work. Bedrock or dense granular or till-like soils encountered during installation of piles are not to be considered as Obstructions.

.36 Off-Site Staging and Stockpile Area. The Off-Site Staging and Stockpile Area is defined as the upland area within the Contractor Off-Site Offload Facility, where the Contractor shall handle dredge material, Dredge Debris, and Demolition Debris following completion of offloading activities and prior to upland transportation and disposal of the material at a Disposal Facility. The Off-Site Staging and Stockpile Area is also the area that the Contractor may use for off-site staging of equipment or materials.

.37 On-Site Staging Areas. The On-Site Staging Areas are located in the upland area of the Work Site, and are shown on the Drawings, and may be used for work conducted at either Work Site. The On-Site Staging Areas may be used for on-site trailer office and other temporary facilities, as well as staging of equipment. It cannot be used for stockpiling of dredge material, Dredge Debris, Demolition Debris, or any other item removed or relocated from the Zones, such as fender piles or associated structural elements, unless accepted by the Departmental Representative. No truck transport of removed materials (i.e., dredge material, Dredge Debris, and Demolition Debris) is allowed to or from the Work Site.

.38 Payable Overdredge Allowance. The Payable Overdredge Allowance for Required Dredging shall be 0.3 m below the Required Dredge Elevation or Required Cut Thickness, as shown on the Drawings. The Payable Overdredge Allowance on Contingency Re-Dredging shall be 0.15 m below the Contingency Re-Dredging Targeted Cut Thickness. Material removed within the Payable Overdredge Allowance will qualify for payment under this Contract for the work. The Contractor shall select its means and methods to conduct its dredging work to stay within the Payable Overdredge Allowance limits to the extent practicable. Material dredged below the Payable Overdredge Allowance (i.e., Excessive Dredging) will not qualify for separate payment. The Contractor shall account for potential Excessive Dredging volume due to its means and methods in its Tender Prices.

.39 Payable Vertical Placement Tolerance. The Payable Vertical Placement Tolerance shall be the depth and elevation ranges above and below the Targeted Placement Thickness and Targeted Placement Elevation that will qualify for payment under this Contract for the work. The Contractor shall account for these tolerances in its Tender Prices for the Backfill Material volumes based on their proposed means and methods. The Payable Backfill Vertical Tolerance for each Backfill Material type is as follows:

.1 RMC in the D Jetty North Zone and D Jetty East Zone: $\pm$ 0.15 m from the RMC Targeted Backfill Placement Thickness (payable thicknesses range from 0.15 m to 0.45 m), as shown on the Drawings.

.2 RMC in the F/G Jetty Zone: $\pm$ 0.15 m from the RMC Targeted Backfill Placement Thickness (payable thicknesses range from 0.15 m to 0.45 m), as shown on the Drawings.

.3 Underpier Cover in the D Jetty North Zone: $\pm$ 0.15 m from the Underpier Cover Targeted Backfill Placement Thickness (payable thicknesses range from 0.35 m to 0.65 m), as shown on the Drawings.

.4 General Backfill and Structural Backfill Type A in the F/G Jetty Zone: $\pm$ 0.15 m from the General Backfill and Structural Backfill Type A Targeted Backfill Placement Elevation (payable elevations range from the post-dredge surface up to 0.45 m to 0.15 m below the existing seabed), as shown on the Drawings.

.40 Post-Construction Survey. The Post-Construction Surveys will be completed by the Contractor to document bathymetry conditions following completion of each component of the work at the D Jetty and F/G Jetty Zones. The Post-Construction Surveys shall be submitted to the Departmental Representative for review and acceptance. Once accepted, they will be used for measurement of Contractor work completed within the Work Site.

.1 Backfill Post-Construction Surveys: The Contractor shall conduct a Post-Construction Survey after placement of each of the five (5) types of Backfill Material.

.2 Contingency Re-Dredging Post-Construction Surveys: The Contractor shall conduct a Post-Construction Survey in all areas designated by the Departmental Representative following completion of directed Contingency Re-Dredging activities.

.3 Required Dredging Post-Construction Surveys: The Contractor shall conduct a Post-Construction Survey after Required Dredging is completed and accepted by the Departmental Representative, after review of Progress Surveys.

.41 Pre-Construction Meeting. The Pre-Construction Meeting shall be defined as the coordination meeting with the Departmental Representative and the Contractor, prior to the start of work. The Contractor will schedule the Pre-Construction Meeting following award of Contract.

.42 Pre-Construction Survey. The Pre-Construction Survey will be completed by the Contractor to document bathymetry conditions within the D Jetty and F/G Jetty Zones in advance of conducting work. This includes the underpier areas within the D Jetty Zones, and under the gas float structure, to the extent practicable, within the F/G Jetty Zone. The Pre-Construction Survey will be used as the basis for measurement of Contractor work completed within the Work Site.

.1 Backfill Pre-Construction Survey: The Required Dredging Post-Construction Survey or Contingency Re-Dredging Post-Construction Survey (if Contingency Re-Dredging is required) will serve as the Backfill Pre-Construction Survey for placement of the Backfill Material.

.2 Dredging Pre-Construction Survey: The Contractor shall conduct a Dredging Pre-Construction Survey in advance of conducting work.

.43 Processing Facility. A facility designed, constructed, and operated that completes one or more of the following activities for all dredge material (excludes Dredge Debris and Demolition Debris): sorting, dewatering, screening, washing, material separation based on particle size, or other similar methods to accomplish the intended segregation of Suspected UXO. All waste materials (e.g., aggregates) following processing at the Processing Facility are prohibited from recycling or beneficial reuse and must be disposed at a Disposal Facility. Prior to initiation of in-water work, as required, the Processing Facility must hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a Facility Regulator for the processing of contaminated material and subsisting permit, license, certificate, approval, or other form of authorization issued by a federal or provincial government, or other authority having jurisdiction, and operate in accordance with federal, provincial, and/or municipal regulations and guidelines for the processing of sediment or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands, or any other land use specified in the BC CSR. The Processing Facility must be acceptable to the Departmental Representative prior to use. The Processing Facility must be located within the extents of the area of responsibility for the

DND's explosive ordinance disposal (EOD) based at the Fleet Diving Unit Pacific (FDU Pacific), as shown on the Drawings. In carrying out the work under the Contract, the Processing Facility must comply with Laws and Regulations. If the Contractor elects to locate the Processing Facility on a floating platform, then the Processing Facility must be within the Work Site. The Contractor is allowed to propose an alternative floating platform location for Departmental Representative review and acceptance. Once material is processed, the Contractor may choose to reload the material on barges and transport processed material to a second Contractor Off-Site Offload Facility that may or may not be within the extents of the area of responsibility of the DND's EOD Team.

.44 Progress Meeting. Progress Meeting is defined as a meeting between the Departmental Representative and the Contractor that will occur on a regular basis throughout the duration of the work as identified in Section 01 31 19 (Project Meetings). The Contractor shall be responsible for scheduling Progress Meetings with the Departmental Representative.

.45 Progress Surveys. Progress Surveys will be completed by the Contractor on a daily basis to document progress of construction activities completed as part of the Contract. Progress Surveys will be used for progress payment to the Contractor and distributed to the Departmental Representative with the Contractor's Daily Construction Reports.

.1 Required Dredging Progress Survey. The Contractor shall conduct these surveys on a daily basis to document dredging progress for Required Dredging.

.2 Contingency Re-Dredging Progress Survey. The Contractor shall conduct these surveys on a daily basis to document dredging progress for Contingency Re-Dredging, as needed.

.3 Backfill Placement Progress Survey. The Contractor shall conduct these surveys on a daily basis to document placement of Backfill Material.

.46 PWGSC Environmental Monitor. Canada will retain the PWGSC Environmental Monitor to confirm that environmental management measures and controls implemented by the Contractor are in accordance with regulatory approvals; authorizations and permits; environmental components of the Contract requirements, including the EMP; and the Contractor's EPP. The PWGSC Environmental Monitor will report to the Departmental Representative and inform them if the Contractor's actions are causing deleterious harm to the environment. The PWGSC Environmental Monitor will not provide their findings directly to the Contractor, or coordinate directly with the Contractor on environmental management measures and controls. The Contractor and/or Contractor's Qualified Professional shall coordinate directly with the Departmental Representative for all environmental management considerations.

.47 Qualified Professional. An individual or firm employed by the Contractor that is responsible for ensuring the Contractor meets environmental protection

requirements as described in the Contract documents, including the Specifications, the Contractor's EPP, and the EMP. The Qualified Professional is defined as an applied scientist specializing in the area of environmental science or engineering, who is: 1) registered in British Columbia with an appropriate professional organization; and 2) through suitable education, experience, accreditation, and knowledge, may reasonably be relied upon to provide advice regarding environmental management to the Contractor. The Qualified Professional shall be the author of the EPP and perform other environmental monitoring requirements as described in the Contract documents. The Qualified Professional may coordinate directly with the Departmental Representative.

.48 Quality Control Plan. The Contractor must submit a Quality Control Plan describing means and methods by which completion of construction activities will be monitored for compliance with the Contract. The Quality Control Plan must be reviewed and accepted by the Departmental Representative prior to the start of work.

.49 Record Drawings. Record Drawings are defined as completion records that document conditions by which construction activities are completed at the Work Site. Record Drawings will serve as the final record of conditions at completion of the work. The Contractor shall submit the Record Drawings to the Departmental Representative for review and acceptance prior to receipt of final payment for the work. The Record Drawings must include final open-water and underpier bathymetry in each Zone as per the Backfill Post-Construction Survey requirements, as well as final reinstated structures.

.50 Required Dredge Elevation. The Required Dredge Elevation represents the minimum elevation that must be achieved within the DUs. Required Dredge Elevations are shown on the Drawings and must be achieved by the Contractor in order to qualify for acceptance of the work by the Departmental Representative.

.51 Required Dredging. Required Dredging is defined as the initial dredging within the horizontal extents and to the vertical Required Dredge Elevations or Targeted Cut Thicknesses shown on the Drawings where the Contractor is required to remove all materials, including Side Slopes and Slough Material. The Unit Price Table includes the Payable Overdredge Allowance volume as part of the Tender for Required Dredging.

.52 Required Minimum Placement Elevation. The Required Minimum Placement Elevation is defined as the minimum required elevation of Backfill Material to be placed, as shown on the Drawings, with no payable overplacement allowance.

.53 Required Minimum Placement Thickness. The Required Minimum Placement Thickness is defined as the minimum required thickness of Backfill Material to be placed, as shown on the Drawings, with no payable overplacement allowance.

.54 Side Slope. The slope to be excavated between the outer edge of the dredge cut at the required elevation (toe) and the intersect point at original ground level (top of

cut or daylight). The design Side Slopes for this project are shown on the Drawings.

.55 Slope Dredging. Slope Dredging is defined as dredging work performed within the slope areas of the Work Site, as shown on the Drawings. Slope Dredging identifies a toe of cut Required Dredge Elevation and a required grade to cut the slope, as shown on the Drawings.

.56 Slough Material. Sediment on a side slope that loses toe support and sloughs into the Dredge Prism. Potential Slough Material volume is not included in the quantities listed in the Unit Price Table. The Contractor shall remove Slough Material from the Dredge Prism at no extra cost to the Contract.

.57 Stand-by Time.

.1 PWGSC has included two Tender Items in the Unit Price Table, identified as STAND-BY TIME – IN-WATER and STAND-BY TIME – MATERIAL PROCESSING, to compensate the Contractor for potential Departmental Representative-directed work stoppage associated with the following conditions:

.1 Work stoppage due to operational needs within the Work Site that occur with less than eight (8) hours' notice to the Contractor (STAND-BY TIME – IN-WATER applies).

.2 Work stoppage due to encountering Suspected UXO that is unsafe to move during dredging activities at the Work Site (STAND-BY TIME – IN-WATER applies) and/or dredge material segregation at the Processing Facility (STAND-BY TIME – MATERIAL PROCESSING applies), as determined by the UXO Qualified Personnel, and accepted by the Departmental Representative. In this case the Departmental Representative would be responsible for the relocation of the Suspected UXO.

.3 Work stoppage due to encountering structures, sites, or things that may be valued for their historical, archaeological, architectural, and paleontological significance during dredging at the Work Site (STAND-BY TIME – IN-WATER applies), as determined by the Archaeological Monitor, and accepted by the Departmental Representative.

.4 Work stoppage due to observations of herring spawn as described in Section 01 35 43 (Environmental Procedures) (STAND-BY TIME – IN-WATER applies).

.2 Stand-by Time is defined as time that the Contractor is directed by the Departmental Representative to stop all work in a specified Zone or relocate equipment to another Zone due to the conditions identified in this Stand-by Time definition. Stand-by Time must be directed and accepted by the Departmental Representative. Contractor downtime, for any reason

other than Departmental Representative direction to not work, will not qualify as Stand-by Time and the Contractor shall carefully consider all other potential downtime, including Inherent Delays, and account for downtime in Tender Unit Prices.

.3 Stand-by Time also will not be paid for under the following conditions:

.1 If the Contractor's approved progress schedule does not show work to be performed during the period affected by the unanticipated operational need and/or observations of herring spawning.

.2 If the Contractor does not have the claimed crews and equipment at the Work Site ready to work, unless the Contractor has received prior acceptance from the Departmental Representative to send the crews home early or bring them in late due to the schedule impact.

.3 If the Contractor is given a minimum of eight (8) hours advanced notice of the unanticipated operational need that may affect the Contractor's work schedule, to allow the Contractor time to adjust its work schedule.

.4 If the Contractor delays in delivering to the Departmental Representative its written notification that describes the work prevented as a result of the unanticipated operational event; the encounter of Suspected UXO unsafe to move; the encounter of item of historical, archaeological, architectural, and paleontological significance; or the observation of herring spawning.

.5 If the Contractor could continue working at another Zone that is not affected by the unanticipated operational need; encountering Suspected UXO unsafe to move; encountering items of historical, archaeological, architectural, and paleontological significance; and/or observations of herring spawning.

.6 If the Contractor cannot adjust its work activities with eight (8) hours' notice to accommodate the unanticipated operational need and/or observations of herring spawning, the Contractor shall substantiate this in writing to the satisfaction of the Departmental Representative. The Departmental Representative must accept the Contractor's justification to be considered for Stand-by Time.

.7 The request for compensation under this provision has not received the pre-acceptance of the Departmental Representative.

.8 Potential downtime associated with Inherent Delays.

.4 Notification: Notify the Departmental Representative in writing immediately in advance of all conditions for which the Contractor may request payment under this provision. Immediately following the impact

event, the Contractor shall provide the Departmental Representative with the number of hours of delay. If the time is accepted by the Departmental Representative, the Departmental Representative will notify the Contractor of acceptance for payment. The Departmental Representative shall have sole discretion as to whether a Stand-by Time event is accepted.

.58 Survey and Positioning Control Plan. Work plan that describes the means and methods for completion of surveys and establishment of positional control at the Work Site, as described elsewhere in this section. The Survey and Positioning Control Plan will be included as part of the Contractor Quality Control Plan, and needs to be reviewed and accepted by the Departmental Representative.

.59 Suspected Unexploded Explosive Ordnance (UXO). Material that presents a potential explosive hazard. UXO is defined as explosive ordnance that has been primed, fused, armed, or otherwise prepared for action and which has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded either by malfunction or design or for any other causes (NATO AAP-6). For the purposes of this Specification, Suspected UXO includes UXO, discarded military munitions, exploded ordnance, munitions scrap, small arms ammunition, and explosive residue. Others may refer to these items as duds, blinds, munitions, explosives of concern, or hazardous explosive ordnance. The Contractor shall be required to remove Suspected UXO from all dredge material (does not include Dredge Debris or Demolition Debris) through material processing of all dredge material at a Processing Facility prior to upland transportation to Treatment Facility (if applicable) and Disposal Facility.

.60 Tailgate Meeting. Tailgate Meeting is defined as a meeting for the Contractor to discuss the plan of work for the day and to discuss the appropriate safety measures applicable to the work. This meeting may be attended by the Departmental Representative or project consultants, at their discretion. Tailgate Meetings will occur on a daily basis throughout the duration of the work, and will focus on daily health and safety considerations associated with planned construction activities. The Contractor shall be responsible for scheduling daily Tailgate Meetings.

.61 Targeted Cut Thickness Dredging. Targeted Cut Thickness Dredging, as shown on the Drawings, shall be performed by removing the specified thickness of material within the dredging tolerance. The Contractor is not required to remove encountered riprap, bedrock, or till (as determined by field observations and accepted by the Departmental Representative) to achieve the specified thickness, but shall remove sediment to the extent practicable, to the specified thickness throughout the entire Dredge Prism. Dredging work will be accepted if completed within the tolerances identified on the Drawings.

.62 Targeted Placement Elevation. The Target Placement Elevation is defined as the target elevation that the Contractor shall place General Backfill and Structural Backfill Type A within the F/G Jetty Zone, as shown on the Drawings. The

Contractor shall be paid for General Backfill and Structural Backfill Type A materials placed within the Payable Vertical Placement Tolerance.

.63 Targeted Placement Thickness. The Target Placement Thickness is defined as the target thickness that the Contractor shall place within the D Jetty North and East Zones, as shown on the Drawings. The Contractor shall be paid for RMC and Underpier Cover materials placed within the Payable Vertical Placement Tolerance.

.64 Tender Item. Tender Item is defined as a measure of work presented on the Unit Price Table by which the Contractor shall provide cost to complete the work as part of the Tender process.

.65 Treatment Facility. An existing facility 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 Facility Regulator for the treatment of contaminated material and operate in accordance with federal, provincial, territorial, state, and/or municipal regulations and guidelines for the treatment of sediment or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands, or any other land use specified in the BC CSR. The Treatment Facility (if proposed) must be accepted by the Departmental Representative prior to use. In carrying out the work under the Contract, the facility must comply with Laws and Regulations, including complying with any enforcement order or direction of any nature or kind under the Laws and Regulations related to the work under the Contract. Treatment of dredge material (i.e., contaminated sediments and Dredge Debris) if proposed, must be completed at a Treatment Facility. Material processing of all dredge materials to remove Suspected UXO must occur at the Processing Facility prior to any treatment at a Treatment Facility.

.66 Unexploded Explosive Ordnance (UXO) Qualified Personnel. The Contractor shall employ UXO Qualified Personnel to monitor, identify, assess, screen, handle/segregate/store (where safe to do so), and document all potential UXO found during this work. The qualifications for UXO Qualified Personnel are listed in Annex A to Chapter 3 of DND's Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011 (Appendix A to these Specifications). Only UXO Qualified Personnel or qualified military personnel may physically touch/handle UXO after determining a potential UXO is safe to move using accepted industry practices and procedures. UXO Qualified Personnel shall be present full time during all processing activities at the Processing Facility and be on call for chance find call-outs in the event Suspected UXO are identified during dredging activities at the Work Site. UXO Qualified Personnel shall follow at all times the requirements in Appendix A to these Specifications.

.67 Vertical Datum. Permanently established plane from which soundings or tide heights are referenced. The vertical datum for this work shall be Chart Datum (CD), as shown on the Drawings.

.68 Waste Quality. Waste Quality shall be defined as contaminated sediment and debris or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands, or other land use specified in the BC CSR.

.69 Wastewater Treatment and Disposal Facility. A facility designed, constructed, and operated for the primary purpose of treating and disposing of wastewater. The Wastewater Treatment and Disposal Facility must hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a province, territory, or state for the operation of the facility, treatment, and disposal of the treated wastewater. The Wastewater Treatment and Disposal Facility can be located on land at the Contractor Off-Site Offload Facility or on a floating platform at the Work Site. In carrying out the work under the Contract, the Wastewater Treatment and Disposal Facility must comply with Laws and Regulations. In the event the Wastewater Treatment and Disposal Facility is a permanent, existing facility and operates outside the jurisdiction of a governing body that can issue a permit for its operation, the Contractor will provide the following:

.1 Written confirmation from the Contractor that they are unable to obtain a permit or license to operate from any applicable potential governing body or agency.

.2 Written confirmation from the land owner (if located on land) that they are allowed to operate and accept liability for the operation and resulting contamination.

.3 Proof of Environmental Liability Insurance regarding operation of the facility.

.4 An operating plan identifying facility process, resulting output streams, and end point for all streams, including but not limited to, discharge options.

.70 Weekly Construction Report. The Weekly Construction Report will be submitted by the Contractor to the Departmental Representative each week and shall provide a summary of the week's construction activities that were completed as part of the Contract. Specific submittal requirements for the Weekly Construction Report are described in the individual Specification sections.

1.4 Construction Sequencing

.1 The Contractor shall prepare a construction sequencing approach section in the Construction Work Plan submittal that describes the Contractor's implementation approach for all construction activities and how this approach will meet the sequencing requirements of these Specifications, the completion of all dredging

and Backfill Material placement by March 31, 2017, and the Substantial Completion date.

.2 The Contractor shall tender and perform the work as described in this Contract under the following general sequencing requirements. The general sequencing listed below does not identify all necessary work elements and is only intended to provide an overview of the required sequence of construction for several key work elements. The Contractor may propose an alternate sequencing approach in its Construction Work Plan, but this alternate sequencing shall require Departmental Representative review and acceptance of deviation from the specified sequencing:

.1 The Contractor shall notify the Departmental Representative ten (10) working days in advance of anticipated work at the Work Site or the Contractor Off-Site Offload Facility.

.2 Conduct mobilization and set up temporary facilities at the Work Site.

.3 Complete Staging and Stockpiling Area set up activities at the Contractor Off-Site Offload Facility prior to start of work.

.4 Complete pre-construction condition inspection of adjacent structures at D Jetty and the gas float in advance of the start of any structure demolition work. Refer to Section 02 41 16.01 (Structure Demolition).

.5 The Departmental Representative reserves the right to inspect all Contractor quality control and environmental protection measures to ensure they are in place and working properly prior to initiating in-water construction activities. In-water construction activities may not begin until all Contractor quality control components are in place and working properly, as accepted by the Departmental Representative.

.6 The Contractor shall perform the in-water work in each zone according to the following sequencing:

.1 The Contractor shall be required to complete all required work at the D Jetty East Zone, except potential Departmental Representative-directed placement of RMC, in a continuous manner (i.e., do not leave gaps in time between work activities unless directed by Departmental Representative or during the Contingency Re-Dredge Decision Duration). The Contractor is allowed to temporarily relocate its equipment to perform work activities at the F/G Jetty Zone during the Contingency Re-Dredge Decision Duration to minimize equipment downtime and/or help achieve the Substantial Completion date. To maintain ongoing CFB Esquimalt operations, all work activities at the D Jetty East Zone, except potential Departmental Representative-directed placement of RMC, must be completed and accepted by the Departmental Representative prior to any work proceeding at the D

Jetty North Zone. If directed by the Departmental Representative, placement of RMC can occur concurrently with any Departmental Representative-directed placement of RMC at the D Jetty North Zone.

.2 Following completion of all work activities at the D Jetty East Zone, except potential Departmental Representative-directed placement of RMC, and acceptance by the Departmental Representative, the Contractor shall perform all work at the D Jetty North Zone in a continuous manner.

.3 At the latest, the Contractor shall initiate work at the F/G Jetty Zone by the first day of the Contingency Re-Dredge Decision Duration for the D Jetty East Zone Required Dredging. The Contractor shall be required to complete all required work at the F/G Jetty Zone in a continuous manner (i.e., do not leave gaps in time between work activities unless directed by Departmental Representative or during the Contingency Re-Dredge Decision Duration). This means that the Contractor will need to conduct some concurrent work at both D Jetty East Zone and F/G Jetty Zone. The Contractor is allowed to temporarily relocate its equipment from F/G Jetty Zone for use at either the D Jetty East Zone or D Jetty North Zone (once all work has been completed at the D Jetty East Zone, except potential Departmental Representative-directed placement of RMC, as accepted by the Departmental Representative) during the F/G Jetty Zone Contingency Re-Dredge Decision Duration to minimize equipment downtime and/or help achieve the dredging and Backfill Material placement completion by March 31, 2017, and Substantial Completion date.

.7 Within each Zone, complete the work activities according to the following sequencing:

.1 Complete any Structure Demolition and temporary relocation applicable to that Zone. This includes the fender system within the D Jetty North Zone, and portions of the gas float structures within the F/G Jetty Zone, as shown on the Drawings.

.2 Complete all dredging activities within that Zone, as shown on the Drawings, and await acceptance of the work by the Departmental Representative, prior to conducting Backfill Material placement activities within that Zone. Refer to Specification Section 35 20 23 (Remedial Dredging), for more sequencing information for dredging.

.3 Complete Backfill Material placement activities, as shown on the Drawings and described below. Refer to Specification

Section 35 37 10 (Material Placement), for more sequencing information for Backfill Material placement.

.1 D Jetty East Zone: Place Structural Backfill Type B, followed by placement of RMC in areas specified by the Departmental Representative.

.2 D Jetty North Zone: Place Structural Backfill Type A, followed by placement of Underpier Cover, followed by placement of RMC in areas specified by the Departmental Representative.

.3 F/G Jetty Zone: Place Structural Backfill Type A and/or General Backfill (concurrent placement allowed), followed by placement of RMC throughout the Backfill Material placement area.

.4 Complete structure reinstatement activities within that Zone, if applicable. This includes reinstatement of the fender system at D Jetty North Zone and portions of the gas float structures at F/G Jetty Zone, as outlined on the Drawings, and replacement of any structural components damaged during removal/reinstatement, as applicable. The structures and fender system shall be reinstated at their original locations, as shown on the Drawings.

.8 Complete post-construction condition inspection of adjacent structures at D Jetty and the gas float at completion of construction. Refer to Section 02 41 16.01 (Structure Demolition).

.9 Upon completion of all work, and after acceptance by the Departmental Representative, the Contractor shall promptly remove the dredging plant and associated equipment, including ranges, buoys, piles, and other markers placed by the Contractor in the water.

.10 The Contractor shall clean up all Work Site and Contractor Off-Site Offload Facility area(s) (including decontamination of Contractor equipment) and remove all temporary facilities. The Departmental Representative will inspect the Work Site and Contractor Off-Site Offload Facility.

.11 The Contractor shall demobilize following completion of the work, and following acceptance of the work by the Departmental Representative.

.12 During completion of the work, the Contractor shall be transporting dredge material, Dredge Debris and Demolition Debris, from the Work Site to the Contractor Off-Site Offload Facility.

.1 The Contractor shall complete final disposal of all dredge material, Dredge Debris and Demolition Debris, and shall submit its Certificate of Disposal to the Departmental Representative within forty-five (45) calendar days after Substantial Completion. The

Contractor shall not move waste from one Disposal Facility to another Disposal Facility once the Contractor submits the Certificate of Disposal.

1.5 Other Contracts – Not Used

1.6 DND Operations at the D Jetty

.1 The Contractor shall occupy only one D Jetty Zone at a time except during potential placement of RMC directed by the Departmental Representative. Concurrent placement is allowed at both D Jetty East Zone and D Jetty North Zone. The other Zone shall be available exclusively for CFB Esquimalt operational needs except during potential concurrent placement of RMC.

.2 The Contractor shall coordinate with the Departmental Representative during the construction activities to avoid impacting potential D Jetty operations, which shall take precedence over the Contractor's work. DND does not anticipate vessel mooring in the Zone in which the Contractor is working, unless for emergency purposes. If DND requires vessel mooring in the Zone in which the Contractor is working, the Departmental Representative may allow the Contractor to continue work in the Zone but will require a minimum 25 m offset from the vessel.

1.7 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.

.3 In the event of discrepancies or conflicts when interpreting the Drawings and Specifications, the Specifications govern.

1.8 Time of Completion and Construction Windows

.1 Complete all dredging and Backfill Material placement by March 31, 2017, and Substantial Completion by May 30, 2017. Allow four (4) weeks for Departmental Representative inspections and completion of corrective actions as necessary, unless otherwise accepted by the Departmental Representative.

.2 The following schedule conditions are fundamental to the Contract:

.1 In-water work including dredging, debris removal, structure demolition and reinstatement, backfill placement, and vibratory pile driving can take place year round with the application of appropriate mitigation measures identified in these Specifications, the EPP, and the EMP.

.2 Requirements regarding observations of herring spawn are contained in Section 01 35 43 (Environmental Procedures).

.3 Bidders shall not contact Fisheries and Oceans Canada during the Tender period.

1.9 Hours of Work

.1 Restrictive as follows:

.1 Normal work hours are between 07:00 am to 7:00 pm Monday through Saturday, not including statutory holidays.

.2 The Contractor may work outside these normal work hours; however, the Contractor shall notify the Departmental Representative a minimum of 48 hours in advance of all after-hours work, including Sundays and holidays, and obtain Departmental Representative acceptance prior to initiating the work.

1.10 Construction Work Schedule and Progress Documentation

.1 Prepare and update a construction work schedule as follows:

.1 As part of the Construction Work Plan, provide a detailed "phasing bar chart" and a construction work schedule showing specific tasks, dates, and critical path of anticipated stages of work, and final completion of the work within the time period required by the Contract documents. These shall be submitted in Adobe PDF and in an industry standard project management software file formats (i.e., Microsoft Project). The preliminary schedule will be reviewed and accepted by the Departmental Representative as part of the Construction Work Plan.

.2 The Contractor shall review and update the construction work schedule for each weekly construction 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 both in hard copy and electronic format (e-mailed) and submitted to the Departmental Representative. The construction work schedule will be an integral part of the Contract and will establish interim completion dates for the various activities under the Contract. Indicate the following:

.1 Submission of product data and samples.

.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.

.3 The construction work schedule format shall be a network analysis of the critical path method. The construction work schedule shall identify the

work clearly, showing the detailed items of work. The breakdown of work shall, at a minimum, show all of the items identified in the Unit Price Table and significant design, manufacturing, construction, and installation activities. Submittals and long lead items shall be included and the relationship between a submittal and the work item shall be identified. The relationship between the work items shall clearly show the starting and completion dates, and include all details of the work within the timeframe shown.

.4 The construction work schedule shall include three (3) working days for Departmental Representative review and acceptance of all work, Contractor corrective work if determined necessary by the Departmental Representative, and cleaning/equipment decontamination, prior to the designated completion date.

.5 The construction work schedule shall be used to justify time extension days requested by the Contractor. For additional days requested, the construction work schedule shall be detailed to identify the work item(s) affected and the relationship to the changed or added work.

.6 Interim reviews of work progress based on the construction work schedule will be conducted as decided by the Departmental Representative, and the schedule shall be updated by the Contractor in conjunction with, and to the acceptance of, the Departmental Representative.

.7 Should any activity not be completed by the stated scheduled date, the Departmental Representative will have the right to require the Contractor to expedite completion of the activity by whatever means appropriate and necessary, without additional compensation to the Contractor.

.8 The Contractor shall inform the Departmental Representative immediately if schedule slippage will prohibit achievement of the Substantial Completion date.

1.11 Cash Flow Estimates

.1 As part of the Construction Work Plan, prepare and submit an initial "month-by-month" cash flow estimate for all construction works. The breakdown of work shall, at a minimum, show all of the items identified in the Unit Price Table and significant design, manufacturing, construction, and installation activities. The estimate shall be submitted in an electronic spreadsheet format (i.e., Microsoft Excel).

.2 The initial "month-by-month" cash flow estimate shall be reviewed and accepted by the Departmental Representative as part of the Construction Work Plan.

.3 Prepare and submit with each monthly progress claim an updated "month-by-month" cash flow estimate for all construction works. The month-by-month cash flow estimates shall:

.1 Be based on the Contract Unit Price Table, and the current approved Contractor's construction schedule.

.2 Be consistent with progress payment claims submitted to date.

.3 Include most up-to-date confirmed, actual quantities, as well as most up-to-date and accurate estimate of remaining quantities.

.4 Include Change Orders for additional cost items that have been incorporated into the Contract.

.5 Provide an updated total estimated final Contract value, excluding and including applicable taxes.

1.12 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 requested by the Departmental Representative, aggregating to the Contract price.

.2 Measurement and payment for work completed to Departmental Representative's satisfaction will be made as stipulated in the relevant technical section of the Specification for that work item and the Unit Price Table.

.3 Measurement for Departmental Representative-directed STAND-BY TIME – IN WATER and STAND-BY TIME – MATERIAL PROCESSING shall be through formal documented communications (i.e., advisories) with the Contractor. The unit price for both instances of Stand-by Time will not be adjusted regardless of the actual quantity used.

1.13 Codes, By-laws, Standards

.1 Perform work in accordance with Laws and Regulations, Construction Standards, and/or any other Code or By-law of local application.

.2 Comply with local and regional by-laws, rules, and regulations enforced at the location concerned. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.3 Meet or exceed requirements of Contract documents, specified standards, codes, and referenced documents.

.4 In any case of conflict or discrepancy, the most stringent requirements shall apply.

1.14 Documents Required

.1 Maintain one (1) copy of each of the following documents and any other applicable documents at the Work Site:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda to Contract documents (as applicable).

.4 Copy of accepted work schedule and most recent version of construction work schedule.

.5 Health and Safety Plan and other safety related documents.

.6 Notice of Project (NOP).

.7 Copies of Contractor Tender Bonds.

.8 Required pre-construction submittals that have been reviewed and accepted by the Departmental Representative (e.g., Contractor's Construction Work Plan, EPP, Quality Control Plan, and Health and Safety Plan).

.9 EMP.

.10 Permits and acceptances.

.11 Required construction submittals (e.g., Contractor's Daily and Weekly Construction Reports).

.12 Change orders.

.13 Other modifications to the Contract.

.14 Manufacturers' installation and application instructions (as applicable).

.15 One set of Record Drawings and Specifications for "as-built purposes."

.16 Current construction standards of workmanship listed in the Specification sections.

.17 All required submittals.

1.15 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, state, or federal authorities, and commercial facilities to be used to complete the work. Pay for any fees, charges, levies, or tolls that are incurred in completing the work (i.e., trucking fees that Municipalities may charge). Required permits shall include, but not be limited to, permit to discharge water from the Contractor Off-Site Offload Facility, Processing Facility, and Treatment Facility (if applicable). The Queen's Harbour Master (QHM) needs to be notified of all barge passive dewatering discharges.

.2 Generally, provincial and municipal Laws and Regulations do not apply on federal lands or to federal undertakings. Soils and other materials that are removed from federal lands may become subject to provincial, municipal, or state Laws and Regulations. Provincial or municipal standards may be used in relation to federal lands only as guidelines for the purpose of establishing remediation

goals and objectives. The term "standards" is used in this part in order to maintain consistency in terminology throughout this document, and does not imply that standards contained in provincial or municipal Laws and Regulations apply on federal lands. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.3 If any portion of the off-site work is conducted on federal lands not administered by DND, the Contractor is required, as part of its operations, to contact the federal custodian, and receive written confirmation of all regulatory or other requirements that may apply to the Contractor's operations on those lands. The Contractor shall provide the written confirmation to the Departmental Representative.

.4 Material transported by barge within Esquimalt Harbour requires that the Contractor coordinate with QHM pursuant to the Canada Marine Act. Material transported by barge outside of Esquimalt Harbour requires that the Contractor meet any applicable Laws and Regulations governing those waters. Information regarding material transport rules can be found at the following link: http://www.navy-marine.forces.gc.ca/en/about/structure-marpac-poesb-practices-procedures.page

.5 Mark floating equipment with lights, buoys, or other acceptable markings in accordance with regulations for the prevention of collisions, requirements, and directives of Work Site, and QHM.

1.16 Contractor Use of Work Site

.1 The Contractor’s Work Site is indicated on the Drawings.

.2 The Contractor and its subcontractors will be required to provide the Departmental Representative a duly completed proof of Security Clearance in order to gain access to the Work Site.

.3 The Contractor is designated as Prime Contractor on the Work Site and assumes all responsibilities of Prime Contractor as per relevant acts and regulations. The Contractor shall be responsible for all work conducted by the Contractor and its subcontractors on the Work Site.

.4 Use of Work Site:

.1 Use of site for execution of work.

.2 Assume responsibility for assigned premises for performance of the work.

.3 Coordinate all work activities with the Departmental Representative associated with this Contract at the Work Site.

.4 Provide security of Contractor’s and all subcontractors’ equipment and material.

.5 Perform work in accordance with Contract documents. Ensure that work is carried out in accordance with indicated sequencing.

.6 Do not unreasonably encumber the Work Site with material and equipment.

.7 Do not obstruct access to DND property outside of the Work Site. Maintain overhead clearances, keep roadways and walkways clear, maintain vessel navigation as described in these Specifications, and maintain routes for emergency response vehicles.

1.17 Waiver and Indemnification

.1 The Contractor may berth their vessel(s) at CFB Esquimalt jetties with the permission of the QHM and shall waive and indemnify the government under the following conditions:

.1 In consideration for the benefit of berthing said vessel, the Contractor shall remise, release, and forever discharge Her Majesty the Queen and the Queen in Right of Canada, Her Officers, Servants, and Members of Her Armed Forces, Her and their heirs, executors, administrators, successors and assigns, and each of them (hereinafter called "Her Majesty") of and from all claims, demands, actions, or causes of actions whatsoever nature or kind against Her Majesty.

.2 This waiver and indemnity is for whatever the Contractor may have ever had, now have, or can, shall, or may have by reason of the granting of the said request, or attributable to, arising out of or in any way connected with the use of self of the said boat camber, the facilities, structures, or the accommodation or upon any defence establishment.

.3 For the purpose relating to such use, the Contractor shall hereby undertake to indemnify and save harmless Her Majesty in respect of each and every such claim, demand, action or cause of action as aforesaid.

.4 The Contractor shall perform a pre-construction and post-construction condition inspection of structures at D Jetty and the gas float that are adjacent to the work to verify that DND assets are not damaged during the course of the Contract. Refer to Specification Section 02 41 16.01 (Structure Demolition) for detailed requirements.

1.18 Examination

.1 Examine the Work Site and be familiar and conversant with existing conditions likely to affect the work.

.2 Prior to initiating work at the Work Site, qualified Contractor's personnel must submit to the Departmental Representative's satisfaction, photographs of surrounding properties, objects, and structures liable to be damaged or be the subject of subsequent claims.

1.19 Existing Services

.1 Where work involves breaking into or connecting into existing services, carry out work at time as advised by the Departmental Representative.

.2 If any damage to DND utilities occurs and is attributable to the Contractor's actions, the Contractor shall immediately notify the Departmental Representative and provide incident reports, and shall immediately repair any such damage to satisfaction of the Departmental Representative at no extra cost to the Contract.

1.20 Setting Out of Work

.1 Assume full responsibility for, and execute complete layout of, work to locations, lines, and elevations indicated.

.2 Provide all equipment, devices, materials, labor, and supplies needed to layout and construct the work.

.3 Facilitate the Departmental Representative’s inspection of the work.

1.21 Acceptance of Substrates

.1 The Contractor shall examine existing surfaces, surfaces prepared by other contractors, and job conditions that may affect its work, and shall report defects to the Departmental Representative. Commencement of work shall imply acceptance of prepared work or substrate surfaces.

1.22 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.

1.23 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 work.

.2 Convene meetings between subcontractors whose work interfaces and ensure awareness of areas and extent of interface required.

.1 Provide each subcontractor with a complete set of Drawings 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 works of various trades, and distribute to affected parties.

.1 Pay particular close attention to overhead work and work within or near to structural elements.

.2 Identify building elements, service lines, and rough-in points on coordination drawings and indicate location service entrances to Work Site.

.3 Facilitate meeting and review coordination drawings. Ensure that subcontractors agree and sign off on drawings.

.4 Publish minutes of each meeting.

.5 Plan and coordinate work in such a way to construct as-built conditions as shown on the Drawings.

.6 Submit copy of coordination drawings and meeting minutes to the Departmental Representative for information purposes.

.3 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, and removal or replacement of completed work.

.3 Ensure disputes between subcontractors are resolved.

.4 The Departmental Representative is not responsible or accountable for extra costs incurred as a result of the Contractor's failure to coordinate work among trades and subcontractors.

1.24 Submittals

.1 In accordance with Section 01 33 00 (Submittal Procedures), submit the requested document plans, data, and products indicated in each of the Specification sections.

.2 Allow sufficient time for the following:

.1 Review of product/sample data.

.2 Review of re-submissions as necessary.

.3 Ordering of accepted materials and/or products.

.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 reviewing re-submittals.

.4 Re-submittals are the responsibility of the Contractor and shall be compensated at no extra cost to the Contract. Submittals shall be completed to the satisfaction of the Departmental Representative.

1.25 Archaeological Structures, Sites, or Things

.1 Archaeological structures, sites, or things of historical, archaeological, architectural, and palaeontological significance may be encountered during completion of the work as part of this Contract. These structures, sites, or things can include, but are not limited to, pre-contact shell midden deposits; historical materials such as jewelry, coins, or naval artifacts; pre-contact stone tools such as arrow heads and fire broken rock; faunal materials; human remains; or any other historical or pre-contact object deemed significant by the Archaeological Monitor within the Work Site or within the processed dredge materials.

.2 At the Work Site and during bulk handling of dredge material (i.e., offloading), the Contractor's staff and subcontractors shall be required to follow Chance Find Procedures, Archaeological and observe for the presence of such items. The Contractor's staff and subcontractors shall immediately notify the Departmental Representative if such items are encountered.

.3 At the Processing Facility, the Archaeological Monitor shall be present during all processing activities, and any other activities deemed necessary by the Contractor, to observe for and identify any such items.

.4 At the Work Site, the Contractor shall await the Departmental Representative's written instructions before proceeding with work in any area where such items have been identified.

.5 The Contractor shall be familiar with the guidelines for Chance Find Procedures, Archaeological as detailed in its definition in these Specifications and shall follow these guidelines in the event structures, sites, or things of historical, archaeological, architectural, and palaeontological significance are observed during construction.

.6 The Departmental Representative may request that the Contractor slow down construction operations at no cost to the Contract to facilitate the archaeological monitoring and inspection.

.7 The Contractor shall submit, as a section of its Construction Work Plan, details on all procedures that will be implemented by the Archaeological Monitor and the Contractor's staff and subcontractors in the event that items of suspected archaeological significance are encountered. The section will include a description of the role, capabilities, and accreditation of the Archaeological Monitor. The section will include basic archaeological site identification criteria and procedures for protecting such items during their evaluation.

.8 Such articles shall remain the property of Canada.

.9 The Contractor shall procure a secure, covered storage area for temporary storage of all pre-contact and non-pre-contact structures, sites, or things of historical, archaeological, architectural, and palaeontological significance.

.10 All pre-contact structures, sites, or things of historical, archaeological, architectural, and palaeontological significance, as determined by the Archaeological Monitor, will be collected, catalogued, analyzed, and reported to the Departmental Representative. At the conclusion of the project, the Departmental Representative will have the first right of refusal to either collect the stored items or direct the Contractor to dispose of them at a Disposal Facility.

.11 It is expected that structures or things of historical, archaeological, architectural, and palaeontological significance will be collected during segregation of Suspected UXO from the dredge material at the Processing Facility. The Archaeological Monitor shall catalogue all observed historical materials, including categorizing by material type (e.g., bottle glass, ceramic), weighing, and photographing all items. The ongoing catalogue of historical materials shall be submitted to the Departmental Representative weekly as part of the Contractor's Weekly Construction Report. The Departmental Representative will have the first right of refusal to either collect the retained materials or direct the Contractor to dispose of them at a Disposal Facility.

.12 The Archaeological Monitor shall conduct a chance find management orientation for the Departmental Representative. The chance find management orientation content must be accepted by the Departmental Representative prior to the orientation.

1.26 Products Supplied by Departmental Representative

.1 No products will be supplied by the Departmental Representative.

1.27 Security Checks

.1 Personnel employed on this project will be subject to security check through the CFB-Esquimalt Visitor Clearance Request (VCR) process. Obtain requisite clearances, as instructed, for each individual required to enter the premises.

.2 The Contractor shall secure the Contractor's equipment and staging areas and its contents throughout the construction period.

1.28 Project Meetings

.1 The Contractor will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

.2 The Departmental Representative may schedule additional project meetings as necessary.

.3 Contractor key field personnel shall attend Departmental Representative-provided Suspected UXO chance find management orientation prior to construction work. This orientation takes approximately one (1) hour.

1.29 Testing and Inspection

.1 Particular requirements for testing and inspection to be carried out by the Contractor's Quality Control testing service or laboratory accepted by the Departmental Representative are specified in the Contract documents.

.2 The Contractor shall appoint and pay for the services of a 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 the Contractor's convenience.

.3 Where tests or inspections by designated testing laboratories reveal work is not in accordance with the Contract requirements, the Contractor shall pay costs for additional tests or inspections as the Departmental Representative may require to verify acceptability of corrected work.

.4 Notify the Departmental Representative in advance of planned testing.

.5 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

.6 Pay costs for uncovering and make good work that is covered before required inspection or testing in completed and accepted by the Departmental Representative.

.7 Provide the Departmental Representative with one (1) electronic copy of testing laboratory reports as soon as they are available.

.8 The Departmental Representative may require, and pay for, additional inspection and testing services beyond those specified or otherwise required.

1.30 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 "as-built" purposes.

.2 As work progresses, maintain accurate records to show all deviations from the Contract documents. Note on as-built specifications, Contract Drawings, and shop drawings as changes occur.

.3 Refer to Section 01 78 30 (Closeout Submittals).

1.31 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 the Contract Drawings 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.

1.32 Cleaning

.1 Conduct cleaning and disposal operations daily. Comply with local ordinances and anti-pollution laws.

.2 Ensure cleanup of the work areas each day after completion of work.

.3 Use cleaning materials and methods in accordance with instructions of the manufacturer of the surface to be cleaned.

1.33 Dust Control

.1 Provide temporary dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of work, and public.

.2 Maintain and relocate protection until such work is complete.

.3 Refer to Section 02 55 10 (Dust Control).

1.34 Environmental Protection

.1 Prevent extraneous materials from contaminating air and water beyond the construction area by providing temporary enclosures during work.

.2 Do not dispose of waste or volatile materials into water courses, storm sewers, or sanitary sewers.

.3 Ensure proper disposal procedures in accordance with all regulations.

.4 Refer to Section 01 35 43 (Environmental Procedures), Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), and Section 01 51 00 (Temporary Facilities), for additional environmental requirements.

1.35 Maintenance Materials, Special Tools, and Spare Parts

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

1.36 Building Smoking Environment

.1 Smoking within any building is not permitted.

.2 Comply with CFB Esquimalt Smoking Policy and designated smoking areas.

1.37 System of Measurement

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

.2 Refer to Section 02 21 13 (Surveying and Positioning Control).

1.38 Familiarization with Work Site

.1 Before submitting Tender, visit the Work Site as indicated in the Tender documents and 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 regard to existing conditions due to lack of familiarity with the Work Site.

1.39 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 Work Site, and is fully conversant with all conditions.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. 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 Measurement and Payment

.1 No separate payment will be made for effort associated with project meetings. The Contactor shall refer to the Unit Price Table for details regarding measurement and payment for the Contract work.

1.3 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

1.4 Definitions

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

1.5 Submittals

.1 The Contractor shall provide pre-construction, progress, and post-construction submittals in accordance with the requirements of this section and Section 01 33 00 (Submittal Procedures).

1.6 References – Not Used

1.7 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 agendas 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 shall record the Progress Meeting minutes, including significant proceedings and decisions, and identify actions by parties.

.1 The Contractor shall reproduce and distribute copies of Progress Meeting minutes within three (3) working days after meetings and transmit to the meeting participants.

.3 Representatives of the Contractor, subcontractors, and suppliers attending Progress Meetings will be qualified and authorized to act on behalf of the party each represents.

1.8 Contract Award Meeting

.1 Within ten (10) working days following Contract Award, the Departmental Representative will request a Contract Award Meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities.

1.9 Pre-Construction Meeting

.1 The Departmental Representative, Contractor, major subcontractors, field inspectors, and supervisors will attend a Pre-Construction Meeting following the Contract Award Meeting.

.2 The Contractor will establish time and location of the meeting and notify parties concerned a minimum of five (5) working days before meeting.

.3 Agenda may include:

.1 Appointment of official representative of participants in the work.

.2 Contractor health and safety.

.3 Work Site security.

.4 Construction Work Schedule.

.5 Environmental management.

.6 Schedule of submissions, including but not limited to, Construction Work Plan, Health and Safety Plan, Quality Control Plan, and Environmental Protection Plan.

.7 WorkSafeBC Notice of Project.

.8 Requirements for temporary facilities, site sign, offices, utilities in accordance with Section 01 51 00 (Temporary Facilities).

.9 Daily Tailgate Meeting.

.10 Progress Meetings.

.11 Project administration, including:

.1 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.

.2 Monthly progress claims, administrative procedures, photographs, and hold backs.

.3 Appointment of inspection and testing agencies or firms.

.4 Insurances, transcript of policies.

1.10 Progress Meetings

.1 During the course of the work, the Contractor shall schedule Progress Meetings at least once per week.

.2 The Contractor, major subcontractors involved in the work (including a representative from the Contractor's Unexploded Explosive Ordnance [UXO] Qualified Personnel), and the Departmental Representative are to be in attendance.

.3 The Contractor shall notify parties a minimum five (5) working days prior to meetings.

.4 The Contractor shall reproduce and distribute copies of the Progress Meeting minutes within three (3) working days after meetings and send to the Departmental Representative for review.

.5 Agenda shall include, at a minimum, the following:

.1 Review and approval of minutes of previous meeting.

.2 Review of work progress since previous meeting.

.3 Health and safety.

.4 Environmental management.

.5 Review of construction schedule.

.6 Field observations, problems, and conflicts.

.7 Review of active Requests for Information (RFIs) and Advisories.

.8 Review of contemplated change notices and change orders.

.9 Problems that impede construction schedule.

.10 Review of off-site fabrication delivery schedules.

.11 Corrective measures and procedures to regain projected schedule.

.12 Revision to construction schedule.

.13 Progress schedule for succeeding work period.

.14 Review submittal schedules and expedite as required.

.15 Maintenance of quality standards.

.16 Review proposed changes for affect on construction schedule and on completion date.

.17 Other business.

1.11 Tailgate Meetings

.1 The Contractor shall schedule daily Tailgate Meetings to occur at the start of each work shift. Multiple Tailgate Meetings shall be required if the Contractor intends to work multiple shifts within a 24-hour period.

.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 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.

.6 Appropriate emergency procedures.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 The Contractor shall be required to provide submittals to the Departmental Representative in advance of, and throughout the duration of the work.

.2 This section specifies general requirements and procedures for the Contractor's submissions of all required submittals following award of the Contract (including plans, product samples, and product testing data) to the Departmental Representative for review. Additional specific requirements for submissions are specified 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 Unit Price Table for details regarding measurement and payment for the Contract work.

1.3 Related Section

.1 All sections of these Contract documents shall apply to requirements for submittals associated with the work. 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, but no warranty is given to its accuracy or completeness. In the event of any discrepancies with the requirements of the individual Specification sections, those individual Specification sections apply.

SUMMARY LIST OF SUBMITTALS

Pre-Construction Submittals

Section	Submittal	Submittal Schedule
01 11 55 01 35 29	Notice of Project	Prior to commencement of work
01 11 55 02 41 13 02 41 16.01 02 41 16.02 31 62 19 35 20 23 35 20 23.01 35 37 10	Construction Work Plan (CWP) (includes construction work schedule)	Within fifteen (15) working days after date of Contract Award and prior to commencement of work The Departmental Representative will review and provide comments within five (5) working days after receipt of plan The revised plan shall be submitted within five (5) working days after receipt of comments from the Departmental Representative Re-reviewing and subsequent Contractor resubmittal will also be the same durations Work shall not commence until the CWP is complete and accepted by Departmental Representative
01 11 55	Initial "month-by-month" Cash Flow Estimate	Same submittal schedule as CWP
01 11 55 01 35 13.43 01 35 43 01 51 00 02 41 13 02 41 16.01 02 41 16.02	Environmental Protection Plan (EPP) (includes Work Site Layouts)	Same submittal schedule as CWP
01 11 55 01 35 29 01 35 35	Health and Safety Plan (including Fire Safety Plan)	Within twenty (20) working days after date of Contract Award and prior to commencement of work Same review schedule as CWP
01 11 55 01 45 00 02 21 13	Quality Control Plan (including Survey and Positioning Control Plan)	Same submittal schedule as CWP
01 35 13.43	Performance of Wastewater Treatment and Disposal Facility Initial Testing Results	TBD

Section	Submittal	Submittal Schedule
01 35 13.43	Wastewater Disposal Facility Operational Instructions and Procedures	TBD
01 51 00	Condition Inspection Report	Prior to initiating work at the On-Site Staging Areas
02 21 13	Dredging Pre-Construction Survey	At least two (2) weeks prior to start of in-water construction activities
02 41 16.01	Pre-construction Condition Inspection Surveys (gas float and D Jetty)	Prior to start of any structure demolition work
02 41 16.01	Post-construction Condition Inspection Surveys (gas float and D Jetty)	Within five (5) working days completing in-water work elements
06 05 73	Wood Treatment Submittals	At least ten (10) days prior to commencing work
26 05 00 26 05 20 26 05 21	Electrical Product Data	At least ten (10) days prior to commencing work
26 05 00	Electrical Quality Control	At least ten (10) days prior to commencing work
31 62 19	Timber Piling Product Data	At least ten (10) days prior to commencing work
31 62 19	Timber Piling Quality Control	At least ten (10) days prior to commencing work
35 20 23	Floating Plant Certificate of Qualification	Same submittal schedule as CWP
35 20 23.01	Disposal Facility (and Treatment and/or Processing Facility if applicable) Permit(s)	With Tender documents

Progress Submittals

Section	Submittal	Submittal Schedule
01 11 55 01 31 19	Minutes of Progress Meeting(s)	Within three (3) working days after meetings
01 11 55	Coordination Drawings	When required
01 11 55 35 20 23 35 20 23.01 35 37 10	Daily Construction Report	By noon the following day

Section	Submittal	Submittal Schedule
01 11 55 35 20 23 35 20 23.01 35 37 10	Weekly Construction Report	By noon the following Monday
01 11 55 35 20 23	Progress Claims	Monthly
01 11 55	"Month-by-month" Cash Flow Estimates	Monthly
01 11 55	Breakdown of the Contract Unit Rates and Lump Sum Prices	Prior to submitting the first progress claim
01 11 55	Record Drawings	As construction activities are completed
01 11 55 35 20 23.01	Certificates of Disposal	Monthly during construction
01 35 29	Health and Safety Requirements, including, but not limited to: Medical Surveillance and Accident Reports	As necessary
01 45 00	Inspection and Laboratory Test Reports	Within two (2) days following completion of inspection or receipt of analytical data from a testing laboratory
02 21 13	Progress Survey(s) and Quantity Calculations	Daily
02 21 13	Post-Construction Bathymetric Survey(s) and Quantity Calculations	Within twenty-four (24) hours after completing the Post-Construction Bathymetric Survey, and as part of the Contractor's Weekly Construction Report
31 62 19	Daily Pile-driving Monitoring Report	Daily during pile-driving construction
35 20 23 35 20 23.01 35 37 10	Empty and Full Barge Displacement Measurements	Prior to each sediment and debris barge leaving the Work Site, and following offload of each sediment and debris barge Empty and full displacements of barges used for transport of Backfill Material
01 11 50 35 20 23.01	Certificates of Treatment	As necessary
02 41 16.01 35 20 23.01	Materials Tracking Documents	As materials leaves the Work Site through final disposal at the Disposal Facility

Section	Submittal	Submittal Schedule
35 37 10	Marine Surveyor Report (for documentation of the seaworthiness of each transport barge)	For all barges used under the Contract prior to transporting material from off site
35 37 10	Backfill Materials Samples	At least two (2) weeks in advance of use at the Work Site
35 37 10	Backfill Materials Laboratory Test Results	At least two (2) weeks in advance of use at the Work Site

Post-Construction Submittals

Section	Submittal	Submittal Schedule
01 11 55 35 20 23.01	Certificates of Disposal	Within forty-five (45) calendar days after the Departmental Representative has accepted that all dredging and demolition work is complete
01 78 30 02 21 13	Record Drawing(s)	Within two (2) weeks of completion of work
01 78 30	Certificate of Completion	Within two (2) weeks of completion of work
01 78 30	Notification of Contractor Inspection Completion	Upon satisfactory completion of Contractor Inspection
26 05 00	Cable Schedule	After installation
26 05 00	Load Balance Measurements	After installation
26 05 00	Electrical Test Results	After installation
01 11 50 35 20 23.01	Certificates of Treatment (if applicable)	Prior to final disposal of dredge material

1.6 References – Not Used

1.7 Administrative

.1 Submit to the Departmental Representative all submittals required for review as described in these Specifications. 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 duration, and no claim for extension by reason of such default will be allowed.

.2 Allow sufficient time for the following:

.1 Review of product/sample data.

.2 Review of re-submissions as necessary.

.3 Ordering of accepted materials and/or products.

.3 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. The Contractor shall provide re-submittals within five (5) working days upon receipt of the Departmental Representative comments. For pre-construction submittals, working days refer to Monday through Friday.

.4 Do not proceed with work affected by submittal until the Departmental Representative review, and acceptance if appropriate, is complete.

.5 Present submittal information in SI Metric units as applicable.

.6 Where items or information are not produced in SI Metric units, converted values are acceptable.

.7 Review submittals prior to submission to the Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of the work and Contract documents. Submittals with content that does not meet the requirements of the Specifications, or that are not stamped, signed, dated, and identified as to specific project will be returned without being examined and will be considered rejected. The Departmental Representative review time starts only when a complete submittal is received.

.8 Notify the Departmental Representative, in writing at time of submission, identifying deviations from requirements of the Contract documents and stating reasons for deviations.

.9 Verify that field measurements and affected adjacent work are coordinated.

.10 The Contractor’s responsibility for errors and omissions in its submissions is not relieved or diminished by the Departmental Representative’s review and acceptance of the Contractor’s submissions. The Contractor's responsibility for deviations in submission from requirements of Contract documents is not relieved by the Departmental Representative review and acceptance of submittals.

.11 The Contractor shall revise all submittals that are determined to be inadequate or non-compliant with the Contract documents or permit conditions by the Departmental Representative.

.12 Re-submittals are the responsibility of the Contractor and shall be compensated at no extra cost to the Contract. Submittals shall be completed to the satisfaction of the Departmental Representative.

.13 Keep one reviewed, and accepted if appropriate, copy of each submission at the Work Site.

1.8 Shop Drawings and Product Data

.1 The term “shop drawings” means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data that are to be provided by the Contractor to illustrate details of a portion of the work.

.2 Submit shop drawings bearing the stamp and signature of a qualified professional engineer registered or licensed in the 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 the work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of section under which adjacent items will be supplied and installed. Indicate cross references to design Drawings and Specifications.

.4 Allow five (5) working days for the Departmental Representative review of each submission.

.5 Adjustments made on shop drawings by the Departmental Representative are not intended to change the Tender amount for the Contract. If adjustments affect the value of the work, state such in writing to the Departmental Representative prior to proceeding with the work.

.6 Make changes in shop drawings as the Departmental Representative may require, consistent with Contract documents. When resubmitting, notify the Departmental Representative in writing of revisions other than those requested.

.7 Submissions include:

.1 Date and revision dates.

.2 Project title and number.

.3 Name and address of the Contractor.

.4 Contractor's stamp, signed by the Contractor's authorized representative certifying acceptance of submissions, verification of field measurements, and compliance with Contract documents

.5 Details of appropriate portions of work.

.8 After the Departmental Representative’s review, distribute copies.

.9 If, upon review by the 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, a noted copy will be returned and resubmission of corrected shop drawings, through the same procedure indicated above, must be performed before fabrication and installation of work may proceed.

.10 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that the Departmental Representative or others approve detail design inherent in shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the 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, the Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation, and for coordination of work of sub-trades.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – 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 offshore portion of the Work Site. In addition, it includes methods and procedures for procurement, fabrication, construction, maintenance, and repair of silt curtains required during completion of the 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), and project permits may also contain specific requirements for environmental protection. 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 the Contractor. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.4 The Contractor shall comply with any permit conditions supplied to the Contractor.

.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 Work Site, Contractor Off-Site Offload Facility, Processing Facility and during barge transport over water and land-based transportation of dredge material to the Disposal Facility. This section primarily addresses work conducted at the Work Site, but the Contractor is responsible for complying with environmental protection regulations at all locations that are used.

.6 The On-Site Staging Areas at the Work Site will be made available for the Contractor for parking, office space, equipment staging, and loading/unloading purposes only. No project materials may be stockpiled and/or stored at this location. The Contractor may request a modification to this requirement from the Departmental Representative.

1.2 Measurement and Payment Procedures

.1 Except for REQUIRED SILT CURTAINS, no separate payment will be made for Special Project Procedures for Contaminated Sites. The Contactor shall refer to the Unit Price Table for details regarding Measurement and Payment for the Contract work.

.2 Measurement and Payment for silt curtains required during cleaning of demolished piling over water and dredging shall be by Lump Sum and will be paid for under the allowance Tender Item for REQUIRED SILT CURTAINS.

1.3 Submittals

.1 Submit, within fifteen (15) working days following the date of Contract Award, an Environmental Protection Plan (EPP); see Section 01 35 43 (Environmental Procedures).

.2 Site Layouts: Prior to mobilization to Work Site, and as part of the Construction Work Plan; submit site layout drawings as described in Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal).

.1 Work Site and Contractor Off-Site Offload Facility, showing existing conditions and facilities, construction 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 Barge landing and offload areas.

.5 Sediment and debris stockpile areas at the Contractor Off-Site Offload Facility.

.6 Exclusion zones, contaminant reduction zones, and other zones specified in the Contractor's site-specific Health and Safety Plan.

.7 Off-Site Staging and Stockpile Area locations.

.8 Grading, including contours, required to construct temporary facilities (if applicable).

.9 Surface water management features including ditches, catch basins, spill aprons, any necessary water treatment measures, or other spill prevention and water management measures.

.10 Wastewater collection areas or facilities as necessary.

.11 Wastewater Treatment and Disposal Facility as necessary.

.12 Wastewater storage areas as necessary.

.13 Environmental protection zones.

.14 Other environmental protection areas specified in the Contractor's site-specific Health and Safety Plan, and as described in this section, Section 01 35 29 (Health and Safety Requirements), and Section 01 35 43 (Environmental Procedures).

.2 On-Site Staging Areas at the Work Site, showing:

.1 Existing conditions and facilities.

.2 Temporary construction facilities.

.3 Temporary controls provided by the Contractor.

.4 Office trailer locations. See Section 01 51 00 (Temporary Facilities).

.5 Parking.

.6 Means of ingress, egress, and temporary traffic control facilities.

.3 Processing Facility

.1 Location of Processing Facility.

.2 Suspected Unexploded Explosive Ordnance (UXO) magazine location and dimensions.

.3 Location of secure, covered storage area for temporary storage of all pre-contact and non-pre-contact structures, sites, or things of historical, archaeological, architectural, and palaeontological significance.

.4 Location of stockpile areas.

.5 Facility process equipment and flow of dredge material through the process.

.6 Associated Wastewater Treatment and Disposal Facility, including permitted discharge location.

.7 Stormwater facilities and drainage pathways.

.8 Other applicable features that provide environmental controls or protection.

1.4 Definitions

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

1.5 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

.3 Section 01 35 43 (Environmental Procedures)

.4 Section 01 74 11 (Cleaning)

.5 Section 02 55 10 (Dust Control)

.6 Section 35 20 23 (Remedial Dredging, Barge Dewatering and In-Water Transportation)

.7 Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal)

.8 Section 35 37 10 (Material Placement)

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, 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, if unable to discharge directly to the receiving waters per the requirements of the EMP, and sediment and transfer materials to the applicable Disposal Facility.

1.8 Wastewater Management and Disposal

.1 Wastewater management and disposal requirements provided in this section apply to management of wastewater at the Work Site. The Contractor shall be responsible for compliance with permit conditions for wastewater management and disposal activities performed at the Contractor Off-Site Offload Facility.

.2 Provide, operate, and maintain wastewater storage tanks to store wastewaters.

.3 Wastewater includes water that comes into contact with contaminated sediments (e.g., barge or upland sediment dewatering effluent, water from any treatment or Processing Facility, as applicable), stormwater that comes into contact with contaminated sediment, and also includes handbasin and shower wastewaters from personal hygiene/decontamination facility and water collected from Equipment Decontamination Facility.

.4 Store wastewaters from Equipment Decontamination Facility in separate tank from wastewater from personnel hygiene/decontamination facility.

.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 a Wastewater Treatment and Disposal Facility.

.7 Equipment decontamination wastewater generated at the Work Site may be discharged to receiving waters at the Work Site, provided it meets requirements for on-site discharge per the EMP. The Queen's Harbour Master (QHM) needs to be notified of all discharges of equipment decontamination wastewater at the Work Site. Decontamination wastewater or other wastewater, including de-watering effluent from off site, may not be transported to and disposed of at the Work Site. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.1 Wastewater generated as part of these activities that cannot meet these requirements shall be disposed of at a Wastewater Treatment and Disposal Facility in accordance with all applicable permits.

.8 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 by the Departmental Representative prior to discharge.

.9 Install wastewater storage tanks in locations determined by the Contractor and accepted by the Departmental Representative.

.10 Support tank[s] on temporary aboveground foundation[s].

.11 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.

.12 Do not operate wastewater storage tanks until inspected and accepted by the Departmental Representative.

.13 Transport and dispose of wastewaters to a Wastewater Treatment and Disposal Facility, as identified by the Contractor for review by the Departmental Representative.

.14 Wastewater sample and analysis: The Contractor will perform sampling and analysis of stored wastewater for disposal purposes prior to removal from the Work Site and transport to a Wastewater Treatment and Disposal Facility. 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 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 at a Wastewater Treatment and Disposal Facility.

.2 Wastewater designated for disposal at a Wastewater Treatment and Disposal Facility, may be transported from the Work Site using upland-based equipment (i.e., trucks).

.3 The Contractor shall identify a Wastewater Disposal Facility in the EPP for other wastewater streams, per results of wastewater testing, and in accordance with the requirements defined in these Specifications.

1.9 Vehicular Access

.1 Maintenance and Use at Contractor Off-Site Offload Facility:

.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. At a minimum, clean access roads at least once per shift.

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 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 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, per the EMP.

.2 Be prepared to intercept, clean up, and dispose of spills or releases that may occur whether on land or water, per the EMP. Maintain materials and equipment required for cleanup of spills or releases readily accessible at the Work Site.

.3 Promptly report spills and releases potentially causing damage to environment, per the EMP.

.4 The Contractor shall make available the Material Safety Data Sheets (MSDS) at the Work Site for the list of known pollutants that are being used at the 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, per the EMP. In addition, comply with Spill Contingency Plan for work at the Work Site.

.6 Provide spill response materials including containers, adsorbent, shovels, and personal protective equipment (PPE), per the EMP. Make spill response materials available at all times in which hazardous materials or wastes are being handled or transported. Provide additional materials and pollution controls as required by FSE Directive SE5 – Spill Response, provided in Appendix E.

1.12 Transportation of Dredge Materials from the Work Site to the Contractor's Off-site Offload Facility

.1 All dredge materials, Dredge Debris, and other materials for disposal shall be transported from the Work Site using waterborne equipment (i.e., barges).

.2 Refer to Section 01 35 43 (Environmental Procedures) and Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal) for information regarding transportation of dredge material from the Contractor Off-Site Offload Facility.

1.13 Upland Equipment Decontamination

.1 Upland equipment decontamination primarily applies to activities that will be completed at the Contractor Off-Site Offload Facility (including Processing Facility if located on land).

.2 Wastewater generated from upland equipment decontamination activities shall be managed in accordance with the discharge permit for the Contractor's Off-Site Offload Facility. Decontamination wastewater or other wastewater, including de-watering from off site, may not be transported to and disposed of at the Work Site. The Contractor is responsible for meeting performance monitoring criteria and objectives identified in these documents.

.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 or in watertight barges 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 the Work Site and/or travel on clean areas. The Departmental Representative will have the right to require that additional decontamination be completed if deemed necessary at no extra cost to the Contract.

.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 or wastewater storage tanks for subsequent disposal at the Wastewater Treatment and Disposal Facility.

.10 Dispose of sediments at the Disposal Facility 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 Floating Equipment Decontamination

.1 Decontaminate floating equipment that is used to dredge and/or haul contaminated sediment, and to process dredge material for Suspected UXO if performed on floating platform(s) in the water, prior to subsequent work in clean areas or travel outside of the Work Site. Water-tight haul barges transporting contaminated sediment to the Contractor Off-Site Offload Facility do not need to be decontaminated during construction work, but do need to be decontaminated once all contaminated dredging activities are completed and accepted by the Departmental Representative and prior to being used for Backfill Material placement.

.2 Wastewater arising from waterborne 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.

.3 Tug boats, work boats, survey boats, or other floating equipment that do not accumulate sediment on their surfaces do not need to be decontaminated.

.4 Silt curtains shall be decontaminated to remove all sediment from its surface, anchors, lines, and other appurtenances.

.5 The exteriors of haul barges used to transport contaminated dredge material, Dredge Debris, or Demolition Debris off site shall be inspected and cleaned to remove excess dredge materials that may accumulate on the exterior of the haul barge, prior to transport off site.

.6 Mechanically remove packed sediment, grit, and debris by scraping and brushing without using steam or high-pressure water to reduce the amount of water needed, and to reduce the amount of contaminated rinsate generated.

.7 Each piece of equipment may be inspected by the Departmental Representative after decontamination and prior to removal from the Work Site and/or travel on clean areas. The Departmental Representative will have the right to require that additional decontamination be completed if deemed necessary at no extra cost to the Contract.

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

.9 If watertight barges or other floating equipment are used for decontamination, decontamination wastewaters and sediments that accumulate shall be collected and transferred to Contractor-supplied drums or wastewater storage tanks for subsequent disposal at the Wastewater Treatment and Disposal Facility.

.10 Dispose of sediments at the Disposal Facility used for the work.

.11 Furnish and equip personnel engaged in equipment decontamination with appropriate PPE.

1.15 Upland Dewatering at the Contractor Off-Site Offload Facility

.1 Dewater various parts of work including, without limitation, dredge material and Dredge Debris and temporary stockpile areas at the Contractor Off-Site Offload Facility.

.2 Wastewater generated from sediment dewatering activities at the Contractor Off-Site Offload Facility shall be managed in accordance with the discharge permit. The Contractor is responsible for meeting performance monitoring criteria and objectives identified in these documents.

.3 Employ construction methods, plant procedures, and precautions that ensure work is stable, free from disturbance, and dry.

.4 Upland dewatering methods: includes surface or free water control systems employing ditches, diversions, drains, pipes, and/or pumps; and other measures necessary to enable work to be carried out in dry conditions.

.5 Provide sufficient and appropriate labour, plant, and equipment necessary to keep work free of water including stand-by equipment necessary to ensure continuous operation of upland dewatering system.

.6 Test and analyze water generated from upland dewatering activities and treat to meet required discharge or disposal requirements in accordance with the discharge permit. The Departmental Representative may also choose to test and analyze water from upland dewatering activities to confirm Contractor quality control. Test results must be provided to and accepted by the Departmental Representative in writing prior to discharge.

1.16 Barge Dewatering

.1 Refer to Section 35 20 23 (Remedial Dredging, Barge Dewatering and In-Water Transportation).

1.17 Progress Cleaning

.1 Maintain cleanliness of work and surrounding the Work Site and Contractor Off-Site Offload Facility to comply with federal, provincial, and local fire and safety laws, ordinances, codes, and regulations. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.2 Coordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.

1.18 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 Work Site and Contractor Off-Site Offload Facility.

.2 Perform decontamination as specified to satisfaction of the Departmental Representative. The Departmental Representative may direct the Contractor to perform additional decontamination if required at no extra cost to the Contract.

1.19 Removal and Disposal

.1 Remove surplus materials and temporary facilities from the 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 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 Disposal Facility or Wastewater Treatment and Disposal Facility identified by the Contractor and in accordance with the content of these Specifications:

.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 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

1.20 Record Keeping

.1 Maintain bills of ladings and waste manifests for minimum of 365 days from date of shipment or longer period required by applicable law or regulation.

1.21 Environmental Management Plan

.1 An EMP has been prepared for this Contract and is provided as an Appendix to 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.

1.22 Off-Site Staging and Stockpile Area

.1 Provide, maintain, and operate storage/stockpiling activities within the Off-Site Staging and Stockpile Area as required.

.2 Install liner below proposed stockpiles to prevent contact between stockpile material and ground. Stockpiled material must be secured and kept covered until material is ready for transport to the Disposal Facility.

1.23 Wastewater Treatment and Disposal Facility:

.1 Design and Operating Criteria: Design water treatment plant capable of treating water generated from dewatering, and equipment decontamination activities to

meet discharge requirements of authority having jurisdiction; capable of removing oil, suspended solids, particulates, metals, and asbestos fibers, and filtering water through particulate filter prior to discharge.

.1 Ensure that discharges from the Contractor Off-Site Offload Facility are in compliance with applicable permit requirements and limitations and/or meet the water quality performance objectives of the EMP and project permits.

.2 Provide piping to transfer liquid/solid mixtures generated by dewatering operations that require water filtering to water filtering plant.

.3 Design water filtering operations capable of receiving liquid/solid mixtures and not causing delay to dewatering operations.

.2 Piping: Suitable material type, of sufficient diameter and structural thickness for purpose intended; satisfactorily tested for leaks with potable water in presence of the Departmental Representative before handling wastewater.

.3 Installation:

.1 Provide labor, materials, and equipment and do work required for setup and construction of water treatment plant.

.4 Initial Testing: Performance of Wastewater Treatment and Disposal Facility provided by the Contractor will be inspected by the Departmental Representative. The Contractor shall submit test results to the Departmental Representative for review.

.5 Operation:

.1 On basis of analytical results reviewed by the Departmental Representative, make system modifications required for effluent to satisfy effluent criteria, or continue with normal dewatering operations.

.2 Operate Wastewater Disposal Facility by experienced, qualified personnel in accordance with manufacturer’s instructions and procedures submitted by the Contractor and reviewed by the Departmental Representative.

.6 Decommissioning/dismantling:

.1 Decontaminate and remove salvageable components of water treatment plant including water treatment system, pumps, piping, and electrical equipment.

.2 Dispose of non-salvageable equipment and materials at the Disposal Facility.

1.24 Upland Water Control

.1 This section applies to over-land water control (i.e., stormwater and surface water control) for management of construction water at the Work Site and Contractor Off-Site Offload Facility.

.2 The Contractor shall include a section of the EPP that discusses the following:

.1 Protect the Work Site and the Contractor Off-Site Offload Facility 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 Contractor Treatment Facility (if applicable).

1.25 Erosion and Sediment Control

.1 The Contractor shall prepare a section of the EPP that addresses potential erosion and sediment control measures for implementation at the Contractor Off-Site Offload Facility, and discusses 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 informed by the Departmental Representative.

.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 advised 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 after each rainfall; 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.

.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 advised by the Departmental Representative.

.7 Repair damaged bales, end runs, and undercutting beneath bales.

.8 Unless otherwise advised by the Departmental Representative, remove temporary erosion and sediment control devices upon completion of 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 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.

1.26 Aquatic Water Quality Control

.1 Prepare, as part of the EPP, an aquatic water quality control section, which describes how the Contractor will limit the dispersion of suspended solids away

from dredging and other aquatic construction activities by use of a silt curtain during completion of its dredging activities. The water quality control section will also describe how the Contractor will comply with all permit requirements related to maintenance of water quality requirements during construction, including completion of water quality monitoring activities, as required by the EMP, as well as contingency actions that the Contractor will implement if water quality exceedances occur.

.2 Prepare, as part of the EPP, a silt curtain control section that contains the following information:

.1 The type and make of all materials and parts proposed for use as part of the silt curtain system.

.2 Detailed fabrication drawings, including manufacturer sketches or Contractor drawings, showing layout of silt curtain system, dimensions, and depictions of how system will interact with Contractor's equipment or Work Site structures.

.3 Silt curtain anchoring plan, if applicable.

.4 Detailed construction schedule that identifies timing and sequencing for completion of silt curtain design and fabrication activities, as they relate to other major elements of the work.

.5 Detailed drawings showing proposed locations for silt curtain installation and operation during structure demolition and dredging activities.

.6 Methods and procedures for Contractor inspection, maintenance, and repair of silt curtain system during construction.

.7 Methods and procedures for relocating the silt curtain system as Contractor moves equipment throughout the Work Site.

2. PART 2 – PRODUCTS

2.1 Required Silt Curtain – Cleaning of Demolished Piling and Dredging

.1 The Contractor shall be responsible for design, procurement, installation, operation, inspection, maintenance, and repair of all silt curtains required for this work.

.2 The silt curtain shall be used to contain turbidity generated during completion of in-water construction activities. 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 at least 5 m below water surface, or to just above the seabed surface, whichever is shallower. The curtain shall completely surround the dredging operations and piling cleaning following demolition (if performed over water at the Work Site). It shall be

installed, managed, and moved such that minimal dispersion of suspended sediment in the water column occurs, and to meet the water quality requirements of the EMP.

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, state, or municipal environmental laws or regulations, permits, and other elements of the Contractor's EPP. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.2 Notwithstanding this notification process, the Contractor shall be responsible for conducting all construction activities in a manner compliant with these regulations.

.3 The Contractor shall inform the Departmental Representative of proposed corrective action after receipt of such notice, and take such action for acceptance by the Departmental Representative.

.4 The Departmental Representative will issue a stop work order until satisfactory corrective action has been taken.

.5 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 will 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 environmental protection program.

.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 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 required silt curtain (for cleaning of pilings and dredging) shall be installed as described below for the following work activities:

.1 Completely surrounding the cleaning of demolished pilings as described in Section 02 41 16.01 (Structure Demolition), if the cleaning is performed over water at the Work Site.

.2 Completely surround the active dredging area where the dredge bucket is moving dredge material through the water column.

.3 As required by any permit conditions.

.2 The silt curtain will not be required during structure demolition or reinstatement activities, or Backfill Material placement activities.

.3 Provide daily inspection of the required silt curtain system to ensure it is properly installed and effectively containing suspended sediment.

.4 The required silt curtain shall not be opened to allow Contractor's equipment to exit the silt curtained area until observed suspended sediment (turbidity) within the silt curtained area is observed to have reduced to Work Site ambient conditions as determined by the PWGSC Environmental Monitor, unless accepted by the Departmental Representative.

.5 Should Contractor inspection or the PWGSC Environmental Monitor 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 requirements and permit conditions at no extra cost to the Contract.

3.5 Protection of Aquatic Water Resources

.1 General

.1 Compliance with conditions of any applicable permit requirements and clearances obtained for the work is the Contractor's responsibility.

.2 Any water discharges from transport haul barges, where allowed, must pass through filter fabric, or other filtering medium and additional treatment (if necessary) to remove suspended solids and meet the requirements of the EMP, before discharge to open waters.

.3 Discharge of effluent from the Contractor's construction activities shall meet all water quality requirements per the EMP and permit conditions.

.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 Qualified Professional will ensure that the Contractor performs all required water quality monitoring identified in the EMP and EPP.

.2 The Qualified Professional shall familiarize itself with and comply with all permits, approvals, and water quality requirements of the EMP.

.3 Under no circumstances will activities conducted by the PWGSC Environmental Monitor alleviate the Contractor's responsibility to monitor its own operations to ensure that the Contractor is meeting the water quality requirements of the EMP.

.4 The Contractor shall provide safe access to the PWGSC Environmental Monitor to conduct water quality monitoring at the specified distances from the work activity.

.5 Water quality shall be controlled and monitored by the Contractor in accordance with the following performance criteria:

.1 Suspended sediments shall be controlled and monitored by the Contractor during completion of work activities including, but not limited to, structure demolition, dredging, Backfill Material placement, and structure reinstatement in accordance with specific Total Suspended Solids (TSS) and Nephelometric Turbidity Units (NTU) criteria described in the EMP.

.6 Any exceedance of the water quality requirements, as described in the EMP, may result in a requirement to stop work or modify work activities at the discretion of the Departmental Representative, at no extra cost to the Contract.

3.7 Protection of Fish and Wildlife

.1 All work shall be performed and all steps taken to prevent interference or disturbance to fish and wildlife.

.2 Water flows or habitat outside the Work Site that are critical to fish or wildlife shall not be altered or disturbed.

.3 The Contractor shall immediately cease dredging or other in-water operations if fish kill or distressed fish are observed, or if a marine mammal is observed within the silt curtain, and immediately notify the Departmental Representative.

3.8 Dust Control

.1 Dust control shall be performed as the work proceeds, whenever a dust nuisance or hazard occurs.

3.9 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.

3.10 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. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.2 The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel.

.3 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 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.

.2 National Building Code of Canada, Part 8, Safety Measures at Construction and Demolition Sites.

.3 National Fire Code of Canada 2010 (as amended), Part 5, Hazardous Processes and Operations and Division B as applicable and required. FCC No. 302 Standard for Welding and Cutting.

.4 American National Standards Institute (ANSI) A10.3, Operations – Safety Requirements for Powder-actuated Fastening Systems

.5 Province of British Columbia

.1 Occupational Health and Safety Act RSBC 1996 – Updated 2012.

.2 Workers Compensation Act Part 3, Occupational Health and Safety.

.6 CFB Esquimalt Safety and Environment Guide for Contractors. February 2015. Provided in Appendix A.

1.2 Submittals

.1 Make submittals in accordance with Section 01 33 00 (Submittal Procedures).

.2 Submit site-specific Health and Safety Plan: Within twenty (20) working days after date of Contract Award and prior to commencement of work. Required content of the Health and Safety Plan is contained within this section.

.3 The Departmental Representative will review the Contractor's site-specific Health and Safety Plan and provide comments to the Contractor within five (5) working days after receipt of plan. Revise plan as appropriate and resubmit plan to the Departmental Representative within five (5) working days after receipt of comments from the Departmental Representative.

.4 The Departmental Representative's review of the Contractor's final Health and Safety Plan should not be construed as approval and does not reduce the Contractor's overall responsibility and legal obligations for construction health and safety. The Departmental Representative's review shall not be interpreted as a warranty of being complete, accurate, and legislatively compliant.

.5 As part of the site-specific Health and Safety Plan, include the following:

.1 Workplace Hazardous Material Information System (WHMIS) Material Safety Data Sheets (MSDS).

.2 On-site and off-site Contingency and Emergency Response Plan: Address standard operating procedures to be implemented during emergency situations, and provide routes to hospitals.

.3 Documentation of health and safety procedures during Suspected Unexploded Explosive Ordnance (UXO) discovery, including at the Processing Facility.

.6 Submit one hard copy and a digital copy of the Contractor's authorized representative's Work Site health and safety inspection reports to the Departmental Representative and the authority having jurisdiction, weekly.

.7 Submit copies of reports or directions issued by federal, provincial, and territorial health and safety inspectors.

.8 Submit copies of incident and accident reports.

.9 Complete and submit a Notice of Project as required by Provincial authorities and provide copies of all notices to the Departmental Representative. (See Filing of Notice clause below.)

.10 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 the Departmental Representative.

1.3 Site Control and Access

.1 Provide safety barricades and lights around the Work Site (as necessary) and the Contractor Off-Site Offload Facility as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.

.2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the Work Site and the Contractor Off-Site Offload Facility.

.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.

.3 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform work and protect other dock users.

.4 Control all Work Site access points and Work Site activities. Delineate and isolate the Work Site, including the Contractor Off-Site Offload Facility from adjacent and surrounding areas by use of appropriate means to maintain control of all Work Site access points.

.5 Make provisions for granting permission to access Work Site to all persons who require access. The Departmental Representative may also

require access to the Construction site on a periodical basis. Procedures for granting permission to access are to be in accordance with the Contractor's Health and Safety Program.

.6 Ensure persons granted access to the Work Site, including the Departmental Representative's personnel are in possession of and wear the minimum personal protective equipment (PPE) designated by the Contractor's Health and Safety Program. Ensure persons granted access to the Work Site are provided with, trained in the use of, and wear, appropriate PPE that are required above and beyond the designated minimums previously noted and as specifically related to the Work Site activity that they are involved in. Be responsible for the efficacy of the PPE that is provided above and beyond the designated minimums.

.7 Erect signage at access points and at other strategic locations around the Work Site clearly identifying the Work Site area(s) as being "off-limits" to non-authorized persons. Signage must be professionally made with well understood graphic symbols and is not to be used as advertising, but for the specific use as related to Work Site safety and key contact information.

.1 Information to be provided on the signage is as follows:

Instructions to Visitors:
Project Name/Description:
Contractor Company Name:
Project Superintendent's Name/Phone No.:
The Departmental Representative's Point of Contact Name/Phone No.:

1.4 Filing of Notice

.1 The Contractor is to complete and submit a Notice of Project with authorities before work commences.

.2 Provide copies of all notices to the Departmental Representative.

1.5 Permits

.1 Obtain permits, licenses, and compliance certificates at appropriate times and frequencies as required by the authorities having jurisdiction.

1.6 Safety Assessment

.1 Perform site-specific safety hazard assessment related to the work.

1.7 Meetings

.1 All personnel employed by the Contractor and its subcontractors shall attend the Canadian Forces Base (CFB) Esquimalt Safety Orientation presentation prior to starting work at the Work Site.

.2 Ensure that all Work Site or Contractor Off-Site Offload Facility personnel 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 PPE.

.6 Appropriate emergency procedures.

.3 Record and post minutes of all meetings in plain view at the Work Site. Make copies available to the Departmental Representative.

1.8 Regulatory Requirements

.1 Comply with specified codes, acts, by-laws, standards, and regulations to ensure safe operations at the Work Site and the Contractor Off-Site Offload Facility.

.2 In the event of a 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.

1.9 Site Conditions

.1 Work will involve contact with:

.1 IL+: Soil/sediment analytical chemical concentrations greater than Contaminated Site Regulations (CSR) Schedule 7 and/or CSR IL standards in Schedules 4, 5 and 10, but less than standards in the Hazardous Waste Regulation (HWR) have been characterized to date. Soil/sediment is to be disposed of at a permitted Disposal Facility.

1.10 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.

.2 Conduct a site-specific hazard assessment based on review of the Contract documents, required work, and project site (including Work Site and Contractor

Off-Site Offload Facility). Identify any known and potential health risks and safety hazards. The Preliminary Job Hazard Analysis Check List is provided for reference as an appendix to the Specifications.

.3 Prepare and comply with a site-specific project Health and Safety Plan based on the hazard assessment, including, but not limited to, the following:

.1 Primary requirements:

.1 The Contractor's safety policy.

.2 Map to nearest medical facility.

.3 Identification of applicable compliance obligations.

.4 Definition of responsibilities for project safety/organization chart for project.

.5 General safety rules for the project.

.6 Communication requirements (dial 89 from internal DND phone lines). Provide other applicable security phone numbers.

.7 Job-specific safe work procedures.

.8 Inspection policy and procedures.

.9 Incident reporting and investigation policy and procedures.

.10 Occupational Health and Safety Committee/Representative procedures.

.11 Occupational Health and Safety meetings.

.12 Occupational Health and Safety communications and recordkeeping procedures.

.2 Summarize health risks and safety hazards resulting from analysis of the hazard assessment, with respect to site tasks and operations that must be performed as part of the work, including the Contractor's plan to monitor hydrogen sulfide as per requirements of the EMP.

.3 List hazardous materials to be brought on site as required by the work.

.4 Indicate engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.

.5 Identify 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 The site-specific project Health and Safety Plan shall include, as an attachment, the Fire Safety Plan. See Specification Section 01 35 35 (DND Fire Safety Requirements) for required content of the Fire Safety Plan.

.5 Develop the Health and Safety Plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.

.6 Revise and update the Health and Safety Plan as required, and re-submit to the Departmental Representative.

.7 The Departmental Representative's review: Review of the Health and Safety Plan by the Departmental Representative shall not relieve the Contractor of responsibility for errors or omissions in the Health and Safety Plan, or of responsibility for meeting all requirements of Contract documents.

1.11 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 site staff.

.2 Include the following provisions in the emergency procedures:

.1 Notify workers and the first-aid attendant of the nature and location of the emergency.

.2 Evacuate all workers safely.

.3 Check and confirm the safe evacuation of all workers.

.4 Notify the fire department or other emergency responders.

.5 Notify adjacent workplaces or residences, which may be affected if the risk extends beyond the workplace.

.6 Notify Departmental 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, including explosives.

.4 Underground work.

.5 Work on, over, under, and adjacent to water.

.6 Workplaces where there are persons who require physical assistance to be moved.

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

.5 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

1.12 Responsibility

.1 Be responsible to ensure that all workers are qualified, competent, and certified to perform the work as required by Workers' Compensation Act or the Occupational Health and Safety Regulations.

.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 the site-specific Health and Safety Plan.

.4 Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor shall respect provincial laws and municipal by-laws at the Work Site.

1.13 Compliance Requirements

.1 Comply with Workers Compensation Act, B.C.

.2 Comply with Occupational Health and Safety Act, B.C.

.3 Comply with Canada Labour Code, Canada Safety and Health Regulations.

1.14 Unforeseen Hazards

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

1.15 Health and Safety Coordinator

.1 Employ and assign to work, a competent and authorized representative as Health and Safety Coordinator. The Health and Safety Coordinator must:

.1 Have site-related working experience specific to activities associated with Marine Construction.

.2 Have working knowledge of occupational safety and health regulations.

.3 Be responsible for completing the Contractor and subcontractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform work.

.4 Be responsible for implementing, enforcing daily, and monitoring site-specific Contractor's Health and Safety Plan.

.5 Be on site during execution of work and report directly to and be under direction of site supervisor.

1.16 Unexploded Explosive Ordnance (UXO) Qualified Personnel

.1 Employ and assign to work, competent and authorized personnel as the UXO Qualified Personnel. The UXO Qualified Personnel must:

.1 Be responsible for monitoring, identifying, assessing, screening, handling, segregating, storing (where safe to do so), and documenting Suspected UXO found during this project.

.2 The qualifications for UXO Qualified Personnel are listed in Annex A to Chapter 3 of DND's DRAFT Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011 (Appendix A to these Specifications).

.3 Be the only personnel that may handle Suspected UXO after determining that a UXO has been identified and has been determined to be safe to move.

.4 Be present full time during all processing activities at the Processing Facility and be on call for chance finds in the event Suspected UXO are identified during dredging or other dredge material bulk handling activities.

.5 Follow at all times the requirements in Appendix A to these Specifications.

1.17 Posting of Documents

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province of British Columbia and in consultation with the Departmental Representative.

1.18 Correction of Non-compliance

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

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

.3 The Departmental Representative may stop work if non-compliance of health and safety regulations is not corrected.

.4 Canada may terminate the Contract without liability to Canada where the Contractor, in the opinion of Canada, refuses to comply with a requirement of the Workers' Compensation Act or Occupational Health and Safety Regulations.

1.19 Meetings

.1 Attend health and safety preconstruction meeting and all subsequent meetings called by the Departmental Representative.

.2 Ensure all site personnel attend a health and safety toolbox meeting at the beginning of each shift, which must include the following:

.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, heat stroke).

.4 Appropriate job-specific safe work procedures.

.5 Required PPE.

.6 Appropriate emergency procedures.

.7 Review of recent accidents on project site (including Work Site and Contractor Off-Site Offload Facility), including near misses.

.3 Retain records of all health and safety meetings on site during work, and retain as corporate records for a minimum of seven (7) years after work is completed.

1.20 Powder Actuated Devices

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

1.21 Accident Reporting

.1 Investigate and report incidents and accidents as required by British Columbia Occupational Safety and Health Act, and the Regulations made pursuant to the Act.

.2 For the purpose of this Contract, immediately investigate and provide a report to the Departmental Representative on incidents and accidents that involve:

.1 A resulting injury that may or may not require medical aid but involves lost time at work by the injured person(s).

.2 Exposure to toxic chemicals or substances.

.3 Property damage.

.4 Interruption to adjacent and/or integral infrastructure operations with potential loss implications.

.3 In the investigation and reporting of incidents and accidents, the Contractor is required to respond in a timely fashion to correct the action that was deemed to have caused the incident and/or accident and advise in writing on the action taken to prevent a reoccurrence of the incident and/or accident.

1.22 Records on Site

.1 Maintain on Work Site a copy of the safety documentation as specified in this section and any other safety related reports and documents issued to or received from the authorities having jurisdiction.

.1 Site-specific project Health and Safety Plan

.2 Notice of Project, per WorkSafeBC requirements

.3 Emergency Procedures

.4 Site drawing showing project layout, locations of First Aid stations, evacuation route, marshalling station and emergency transportation provisions

.5 Hazard Assessments

.6 JOSH Committee Meeting minutes

.7 Incident Reports

.8 Accident Reports

.9 Training Records

.10 Site Inspection Records

.11 Equipment Certifications

.12 Crane Certifications

.13 Crane Operator Certifications

.14 Utility Locates

.15 WHMIS MSDS Documents

.16 Disciplinary Records

.17 Workers' Compensation Board Letter of Clearance for all contractors on site

.18 Inspections by authorities having jurisdiction

.19 Lead Awareness Training Certificates (and other applicable Hazardous Material Training Certificates)

.20 Respirator Fit Test Certificates

.2 Post all MSDS at Work 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 Upon request, make copies available to the Departmental Representative.

1.23 Utility Clearance

.1 The Contractor is solely responsible for utility clearance.

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

1.24 Personal Protective Equipment Program

.1 Submit PPE program, as part of the Health and Safety Plan, to the Departmental Representative, addressing:

.1 Donning and doffing procedures.

.2 PPE selection based upon site hazards.

.3 PPE use and limitations of equipment.

.4 Work mission duration, PPE maintenance and storage.

.5 PPE decontamination and disposal.

.6 PPE inspection procedures prior to, during, and after use.

.7 Evaluation of effectiveness of PPE program, and limitations during temperature extremes, and other appropriate medical considerations.

.8 Medical surveillance requirements for personnel assigned to work at site.

.9 Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.

.10 Site control measures employed at Work Site, including site map, site Zones, use of ”buddy system”, site communications including site security, alerting means for emergencies, standard operating procedures or safe work practices, and identification of nearest medical assistance.

.11 Decontamination procedures for both personnel and equipment.

.12 Emergency response requirements addressing: pre-emergency planning, personnel roles, lines of authority and communication, emergency recognition and prevention, safe distances and places of refuge, site security and control, evacuation routes and procedures, decontamination procedures not covered under decontamination section, emergency medical treatment and first aid, emergency alerting and response

procedures, critique of response and follow-up, PPE and emergency equipment, site topography, layout, prevailing weather conditions, and procedures for reporting incidents to local, provincial, or federal agencies.

.13 Written respiratory protection program for project activities.

.14 Procedures dealing with heat and/or cold stress.

.15 Spill containment program if waste material is generated, excavated, stored, or managed on site.

1.25 Off-site Contingency and Emergency Response Plan

.1 Prior to commencing work involving handling of hazardous materials, develop off-site Contingency and Emergency Response Plan, as part of the Health and Safety Plan.

.2 Plan must provide immediate response to serious site occurrence, such as explosion, fire, or migration of significant quantities of toxic or hazardous material from site.

1.26 Personnel Health, Safety, and Hygiene

.1 Training: ensure personnel entering site are trained in accordance with specified personnel training requirements. Training session must be completed by Health and Safety Officer.

.2 Levels of Protection: establish levels of protection for each work area based on planned activity and location of activity.

.3 Personal Protective Equipment:

.1 Furnish site personnel with appropriate PPE as specified above. Ensure that safety equipment and protective clothing is kept clean and maintained.

.4 Develop protective equipment usage procedures and ensure that procedures are strictly followed by site personnel; include following procedures as minimum:

.1 Ensure prescription eyeglasses worn are safety glasses, and do not permit contact lenses on site within site.

.2 Ensure footwear is steel-toed safety shoes or boots and is covered by rubber overshoes when entering or working in potentially contaminated work areas.

.3 Dispose of or decontaminate PPE worn on site at end of each workday.

.4 Decontaminate reusable PPE before reissuing.

.5 Ensure site personnel have passed respirator fit test prior to entering potentially contaminated work areas.

.6 Ensure facial hair does not interfere with proper respirator fit.

.5 Respiratory Protection:

.1 Provide site personnel with extensive training in usage and limitations of, and qualitative fit testing for, air purifying and supplied-air respirators in accordance with specified regulations.

.2 Develop, implement, and maintain respirator program.

.3 Monitor, evaluate, and provide respiratory protection for site personnel.

.4 Ensure levels of protection as listed have been chosen consistent with site-specific potential airborne hazards associated with major contaminants identified on site.

.5 In absence of additional air monitoring information or substance identification, retain an industrial hygiene specialist to determine minimum levels of respiratory protection required.

.6 Immediately notify Departmental Representative when level of respiratory protection required increases.

.7 Ensure appropriate respiratory protection during work activities. As a minimum requirement, ensure that persons entering potentially contaminated work areas are supplied with and use appropriate respiratory protection.

.6 Heat Stress/Cold Stress: implement heat stress or cold stress monitoring program as applicable and include in site-specific Health and Safety Plan.

.7 Hydrogen sulfide monitoring will be undertaken in and around the work area during dredging of sediment.

.8 Personnel Hygiene and Personnel Decontamination Procedures: pprovide the minimum as follows:

.1 Suitable containers for storage and disposal of used disposable PPE.

.2 Potable water and suitable sanitation facility.

.9 Emergency and First-Aid Equipment:

.1 Locate and maintain emergency and first-aid equipment in appropriate location on site, including first-aid kit to accommodate number of site personnel; portable emergency eye wash; two 9 kilogram ABC type dry chemical fire extinguishers.

.10 Site Communications:

.1 Post emergency numbers near site telephones.

.2 Ensure personnel use of “buddy system” and develop hand signal system appropriate for site activities.

.3 Provide employee alarm system to notify employees of site emergency situations or to stop work activities if necessary.

.4 Furnish selected personnel with two-way radios.

.5 Safety Meetings: conduct mandatory daily safety meetings for personnel, and additionally as required by special or work-related conditions; include refresher training for existing equipment and protocols, review ongoing safety issues and protocols, and examine new site conditions as encountered. Hold additional safety meetings on an as-needed basis.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. PART 1 – GENERAL

1.1 Construction Fire Safety

.1 The Contractor shall provide construction fire safety in accordance with the National Fire Code of Canada.

1.2 Fire Safety Enforcement

.1 Within the confines of the Canadian Forces Base (CFB) Esquimalt, the prescription and enforcement of mandatory Fire Safety measures will be exercised under the authority of the Departmental Representative.

.2 Comply with and enforce compliance by all Contractor personnel with all requirements of this Specification section, and with the most recent edition of the National Building Code of Canada and the National Fire Code of Canada, including all subsequent revisions issued by the National Research Council of Canada.

.3 The Departmental Representative reserves the right to require the dismissal from site of persons deemed careless or otherwise in violation of the Fire Safety Requirements.

1.3 Fire Department Briefing

.1 The Departmental Representative will coordinate arrangements for Pre-Commencement Meeting following Contract Award. The Contractor will be briefed on fire safety by the Departmental Representative or their designated representative before work starts.

1.4 Reporting Fires

.1 The Contractor shall inform the Departmental Representative of all fire incidents at the Work Site, regardless of size.

.2 Know location of nearest fire alarm box and telephone, including emergency phone number.

.3 Report immediately fire incidents to the local fire department using one of the following methods:

.1 Activate nearest fire alarm box.

.2 Contact using telephone.

.4 Person activating fire alarm pull station will remain at the front entrance to direct local fire department to scene of fire.

.5 When reporting fire by telephone, give location of fire and the name or number of building, and be prepared to verify location. When the Contractor(s) calls 911, they must specify that the location of fire is at CFB Esquimalt, Colwood, D Jetty, and/or gas float.

1.5 Fire Safety Plan

.1 As part of the Contractor's Health and Safety Plan, submit a Fire Safety Plan for the Work Site prior to commencement of construction work. The Fire Safety Plan shall conform to the National Fire Code of Canada.

.2 The Fire Safety Plan shall be submitted to the Departmental Representative for review by the local fire department. Any comments by the local fire department shall be implemented by the Contractor.

.3 The Fire Safety Plan shall be limited to the area of construction only. The Contractor is not responsible for amending fire safety plans in existing buildings.

.4 Post the Fire Safety Plan at the entrance to the Work Site or near the Work Site health and safety board.

.5 The Fire Safety Plan shall conform to the National Fire Code of Canada, and shall contain, at minimum:

.1 Emergency procedures to be used in case of fire, including:

.1 Sounding the fire alarm

.2 Notifying the fire department

.3 Instructing occupants on procedures to be followed when the fire alarm sounds

.4 Evacuating occupants, including special provisions for persons requiring assistance

.5 Confining, controlling, and extinguishing fires

.2 The appointment and organization of designated supervisory staff to carry out fire safety duties.

.3 The training of supervisory staff and other occupants in their responsibilities for fire safety.

.4 Documents including diagrams, showing the type, location, and operation of building fire emergency systems.

.5 The holding of fire drills (where applicable).

.6 The control of fire hazards in the building.

.7 The inspection and maintenance of building facilities provided for the safety of occupants.

1.6 Fire Warning System

.1 A fire warning shall be provided to notify construction personnel of a fire emergency in the construction area.

.2 The system used shall be capable of being heard throughout the Work Site.

1.7 Interior and Exterior Fire Protection and Alarm Systems

.1 Fire protection and alarm systems will not be:

.1 Obstructed.

.2 Shut off.

.3 Left inactive at the end of a working day or shift without authorization from the Departmental Representative.

.2 Do not use fire hydrants, standpipes, or hose systems for other than firefighting purposes unless authorized by the Departmental Representative.

1.8 Fire Protection System Impairment

.1 Notify the Departmental Representative fifteen (15) working days prior to shutting down any active fire protection system, including water supply, fire suppression, fire detection, and life safety systems.

.2 Where a fire protection system that provides fire alarm monitoring is impaired in an existing building, a fire watch may be required at the discretion of the Departmental Representative.

.3 Implement all fire protection system impairments in accordance with the National Fire Code of Canada and CFB Esquimalt Fire Orders. CFB Esquimalt Fire Orders will be provided at the Pre-Commencement Meeting.

1.9 Fire Extinguishers

.1 In addition to other requirements of this Specification, supply fire extinguishers, as directed by the Departmental Representative, necessary to protect work in progress and the Contractor's physical plant on site.

.2 Fire extinguishers may be required in the following areas as directed by the Departmental Representative

.1 Adjacent to hot works

.2 In areas where combustibles are stored

.3 Near or on any internal combustion engines

.4 Adjacent to areas where flammable liquids or gases are stored or handled

.5 Adjacent to temporary oil fired or gas fired equipment

.6 Adjacent to bitumen heating equipment

.3 Extinguishers shall be sized as 4-A:40-B:C 9 kilograms (20 pounds) unless otherwise directed by the Departmental Representative.

.4 Extinguishers shall be of the dry chemical type unless otherwise required by the hazard being protected.

.5 The Contractor may assume the quantity of extinguishers based on a maximum travel distance between extinguishers of 23 metres (m).

1.10 Access for Fire Fighting

.1 Access for firefighting shall be provided in accordance with the National Fire Code of Canada.

.2 Advise the Departmental Representative of work that would impede fire apparatus response. This includes violation of minimum horizontal and overhead clearance, as prescribed by the Departmental Representative, erecting of barricades, and digging of trenches.

.3 Minimum horizontal clearance: Clear width of not less than 5 m, or as defined by the Departmental Representative.

.4 Minimum vertical clearance: Overhead height of not less than 6 m, or as defined by the Departmental Representative.

1.11 Smoking Precautions

.1 Smoking is prohibited in all buildings.

.2 Observe posted smoking restrictions near existing buildings.

1.12 Rubbish and Waste Materials

.1 Keep rubbish and waste materials at minimum quantities.

.2 Burning of rubbish is prohibited.

.3 Removal:

.1 Remove rubbish from Work Site at end of a working day or shift or as directed.

.4 Storage:

.1 Store oily waste in approved receptacles to ensure maximum cleanliness and safety.

.2 Deposit greasy or oily rags and materials subject to spontaneous combustion in approved receptacles and remove as directed by the Departmental Representative.

1.13 Flammable and Combustible Liquids

.1 Handle, store and use of flammable and combustible liquids in accordance with the National Fire Code of Canada.

.2 Keep flammable and combustible liquids such as gasoline, kerosene, and naphtha for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing Underwriters' Laboratory of Canada or Factory Mutual seal of approval. Obtain written authorization from the Departmental Representative for storage of quantities of flammable and combustible liquids exceeding 45 litres.

.3 Do not transfer flammable and combustible liquids inside buildings or jetties.

.4 Do not transfer flammable or combustible liquids in vicinity of open flames or any type of heat-producing devices.

.5 Do not use flammable liquids having flash point below 38°C such as naphtha or gasoline as solvents or cleaning agents.

.6 Store flammable and combustible waste liquids, for disposal, in approved containers located in a safe ventilated area. Keep quantities to a minimum and notify the Departmental Representative when disposal is required.

.7 Dumping or burning of flammable liquids on site is prohibited.

.8 The Departmental Representative reserves the right to require removal from the site of any storage containers not acceptable to the Departmental Representative.

1.14 Hot Works

.1 The Contractor shall implement a hot works program in accordance with the National Fire Code of Canada and National Fire Protection Association 51B Standard for Fire Prevention during Welding, Cutting and Other Hot Work.

.2 The Contractor shall be coordinated through the Departmental Representative from DND (base fire hall; Mike Mclean 363-1911) a "hot work" permit for all hot works in the construction area. Frequency of renewal for hot works permits is at the discretion of the Departmental Representative.

.3 When work is carried out in dangerous or hazardous areas involving use of heat, provide fire watchers equipped with sufficient fire extinguishers. Determination of dangerous or hazardous areas along with level of protection necessary for fire watch is at discretion of the Departmental Representative.

.4 Provide fire watch service for work on scale established and in conjunction with the Departmental Representative as defined in the Fire Department Briefing. Fire watchers shall be trained in the use of fire extinguishing equipment.

.5 Area of hot works:

.1 Hot works shall be carried out in an area free of combustible and flammable content.

.2 Where carrying out hot works in an area free of combustible and flammable content is not possible:

.1 All flammable and combustible materials within 15 m of the hot works shall be protected in accordance with the National Fire Code of Canada.

.2 A fire watch shall be provided during the hot work and for a period of not less than 60 minutes unless otherwise directed by the Departmental Representative.

.3 A final inspection of the hot work area shall be conducted not less than 4 hours after the completion of hot works unless otherwise directed by the Departmental Representative.

.3 Where there is a possibility of sparks leaking onto combustible materials in areas adjacent to the areas where the hot work is carried out:

.1 Openings in walls, floors, or ceilings shall be covered or closed to prevent the passage of sparks to such adjacent areas; or

.6 Protection of flammable and combustible materials:

.1 Any combustible or flammable material, dust, or residue shall be:

.1 Removed from the area where hot works is carried out; or

.2 Protected from ignition by non-combustible materials.

.7 Fire extinguisher:

.1 A fire extinguisher shall be provided within 3 m of all hot works. The minimum size shall be 9 kilograms (20 pounds) ABC unless otherwise directed by the Departmental Representative.

1.15 Hazardous Substances

.1 Work entailing use of toxic or hazardous materials, chemicals and/or explosives, or otherwise creating hazard to life, safety, or health, shall be in accordance with National Fire Code of Canada.

.2 Obtain from the Departmental Representative a hot work permit for work involving welding, burning, or use of blowtorches and salamanders, in buildings or facilities.

.3 When work is carried out in dangerous or hazardous areas involving use of heat, provide fire watchers equipped with sufficient fire extinguishers. Determination of dangerous or hazardous areas along with level of protection necessary for fire watch is at discretion of the Departmental Representative. The Contractor is

responsible for providing fire watch service for work on scale established and in conjunction with the Departmental Representative at pre-work conference.

.4 Provide ventilation where flammable liquids, such as lacquers or urethanes are used. Eliminate all sources of ignition. Inform the Departmental Representative prior to and at completion of such work.

1.16 Questions and/or Clarification

.1 Direct questions or clarification on Fire Safety in addition to above requirements to the Departmental Representative.

1.17 Fire Inspection

.1 Coordinate site inspections through the Departmental Representative.

.2 Allow the Departmental Representative unrestricted access to the Work Site.

.3 Cooperate with the Departmental Representative during routine fire safety inspection of the Work Site.

.4 Immediately remedy unsafe fire situations observed by the Departmental Representative.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. 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 while completing all work under this Contract.

.2 The Contractor shall review and understand the Environmental Management Plan (EMP) prior to submission of Tender. The EMP is included as an Appendix to these Contract documents. Prior to the commencement of work, the Contractor shall prepare an Environmental Protection Plan (EPP) that demonstrates how they will satisfy the requirements set out in the EMP.

.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 any specific requirements in the project permits, and the EMP. The Contractor shall comply with all permit conditions. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.4 The Contractor is responsible for environmental protection during all construction activities at all locations it performs work. Work locations include, but are not limited to, the Work Site (including the On-Site Staging Areas), Contractor Off-Site Offload Facility, and during barge transport over water and land-based transportation of dredge material and debris. This section primarily addresses work conducted at the Work Site, but the Contractor is responsible for complying with environmental protection regulations at all locations that are used.

.5 This section assumes that dredge material, Dredge Debris, and Demolition Debris will be directly transported from the Work Site via haul barge to the Contractor Off-Site Offload Facility, temporarily stockpiled within an Off-Site Staging and Stockpile Area, dewatered (if applicable), amended (if applicable), treated (if applicable), re-handled, and loaded into trucks or railcars for upland transportation to a Disposal Facility. In addition, processing of dredge material will occur at a Processing Facility located either on a barge within the Work Site (prior to transport to the Contractor Off-Site Offload Facility) or at an upland location that has been reviewed and accepted by the Departmental Representative.

1.2 Measurement and Payment Procedures

.1 No separate payment will be made for work associated with environmental procedures. Activities associated with environmental procedures shall be considered incidental to the work.

1.3 Definitions

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

1.4 Submittals

.1 Submittals shall be in accordance with Section 01 33 00 (Submittal Procedures). Prior to commencing construction activities or delivery of materials to the Work Site.

.2 The Contractor shall submit an EPP prepared by a Qualified Professional (QP) for review and acceptance by the Departmental Representative within fifteen (15) working days following 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 will use to comply with the EMP and all required permit conditions. This plan shall address all construction activities. The EPP shall present a comprehensive overview of known or potential environmental issues.

.3 Address topics at a level of detail commensurate with environmental issues and required construction tasks.

.4 See Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) for additional information and requirements to be included in the EPP.

.5 At a minimum, the EPP shall contain the following information:

.1 Organization chart and names of persons responsible for EPP compliance.

.2 Names and qualifications of persons responsible for manifesting waste to be removed from the Work Site.

.3 Upland Work: See Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) for upland work submittal requirements at the On-Site Staging Areas or Contractor Off-Site Offload Facility as part of the EPP.

.4 In-Water Work:

.1 Describe methods, procedures, and Best Management Practices (BMPs) to comply with water quality requirements and control requirements per the EMP, these Specifications and all permit conditions, and contingency measures the Contractor will take to meet requirements if exceedances occur.

.2 The Contractor shall provide detail on the methods that it will use to monitor haul barges for leakage during transport of dredge material to the Contractor Off-Site Offload Facility. The Contractor shall provide details of the type and dosage of drying amendment used, if applicable. If leakage is observed, however

minor, the barge transport operations shall be halted and not restarted until repairs, satisfactory to the Departmental Representative, are made.

.5 As a section of the EPP, include the following information pertaining to pollution control:

.1 Procedures, response actions, and reports to be used in the event of an unforeseen spill of regulated substance.

.2 Procedures for in-water refueling of marine equipment within the Work Site and within Esquimalt Harbour.

.3 The name of the individual who will be responsible for implementing and supervising the spill containment and cleanup.

.4 Non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal generated during dredging activities.

.5 Identification of potentially hazardous substances to be used on the Work Site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with federal, provincial, state, and municipal Laws and Regulations for storage and handling of these materials. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.6 Wastewater management plan that identifies methods and procedures for management and/or discharge of waste waters that are directly derived from construction activities, such as cleanup water, dewatering of sediment stockpiles on barges used for temporary on-site stockpiling and at the Contractor Off-Site Offload Facility, disinfection water, personnel and equipment decontamination facilities, and water used in flushing of lines. See Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) for additional requirements regarding wastewater management and disposal.

.6 In project areas where active monitoring by the Archaeological Monitor is not being undertaken, the Contractor shall adhere to Chance Find Procedures, Archaeological.

.7 Include methods in the EPP to ensure protection of archaeological structures, sites, or things of historical, archaeological, architectural, and palaeontological significance and identify lines of communication between Contractor personnel and the Departmental Representative.

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, and authorizations; following all of the Departmental Representative's instructions and policies, practices, and procedures established by the Departmental Representative with respect to the environment that are communicated 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 Work Site or Contractor Off-Site Offload Facility; 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 Laws and Regulations; and remove all tools, equipment, supplies, and wastes from the 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 Work Site, Contractor Off-Site Offload Facility, Contractor Processing Facility, and Contractor Treatment Facility (if applicable) and that workers and supervisory staff are knowledgeable with the provisions of the EPP and EMP and are adequately trained to implement the measures contained therein.

1.6 Fires

.1 Fires and burning of rubbish on site are not permitted.

1.7 Asbestos-containing Materials Prohibition

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

1.8 Storage Tanks

.1 Abide by the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* for stored petroleum products and allied petroleum products

tank system located on federal or Aboriginal land, or within federal jurisdiction as described in the Regulations.

.2 Temporary storage tanks subject to the Regulations must be registered with Environment Canada.

.3 Mobile tanks subject to the Regulations must be certified to be mobile.

.4 Storage tanks must have corrosion protection, secondary containment, containment sumps (if applicable), and overfill protection.

.5 All components of tank system must bear certification marks indicating that they conform to the standards set out in the Regulations.

.6 Product transfer area must be designed to contain spills.

.7 Prior to first filling, storage tanks must be registered, certified, and marked.

1.9 Disposal of Non-Sediment Wastes

.1 Do not bury rubbish and waste materials on the Work Site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil, or paint thinner into waterways, storm sewers, or sanitary sewers.

.3 Do not discharge wastes into streams or waterways.

.4 The Contractor is responsible for storing, separating, handling, transporting, and disposing of all waste materials in accordance with federal, provincial, state, municipal, and local regulations and requirements, and at an appropriate Disposal Facility or transfer station.

.5 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 and accepted by the Departmental Representative.

1.10 Vehicular Access and Parking

.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 from Contractor activities as determined by the Departmental Representative; transport and place into a designated area accepted by the Departmental Representative. Clean access roads at least once per shift.

.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 work. Excavate and dispose of clean soil contaminated by Contractor's activities at no extra cost to the Contract.

.2 Vehicles/equipment shall be in good working order and not be leaking any fuel or fluids.

.3 Traffic management measures (such as 'flag person') shall be implemented if required at site access points to direct traffic.

1.11 Upland Equipment Decontamination

.1 See Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) for environmental procedures requirements regarding upland equipment decontamination.

1.12 Upland Drainage

.1 Comply with the temporary erosion control measures, as prepared for and provided in the EPP and described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), for work to be completed at the Contractor Off-Site Offload Facility. Implement monitoring and reporting requirements to ensure that control measures are in compliance with Laws and Regulations. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.2 Comply with the over-land water control requirements (i.e., stormwater and surface water control), as prepared for and provided in the EPP and described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), for work to be completed at the Contractor Off-Site Offload Facility. Implement monitoring and reporting requirements to ensure that control measures are in compliance with Laws and Regulations.

.3 Provide temporary drainage and pumping as necessary to keep upland sites free from water.

.4 Do not allow water containing suspended materials to enter into public or private roadways, waterways, sewers, or drainage systems.

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

.6 Do not direct water flow in a manner that would cause erosion to existing areas.

1.13 Surface Water Quality

.1 Materials and equipment shall be regularly inspected, maintained, operated, and stored in a manner that prevents deleterious substances (e.g., petroleum products, silt, etc., as defined in the Fisheries Act [R.S.C., 1985, c. F-14, Department of Fisheries and Oceans]) from entering the harbour.

1.14 Work Adjacent to Waterways

.1 Applies to work to be performed at the Work Site and the Contractor Off-Site Offload Facility:

.1 Do not use waterway beds for borrow material.

.2 Do not dump excavated fill, waste material, or debris in waterways.

.3 Do not blast under water.

.4 Special care shall be exercised while working near water's edge including implementation of site-specific erosion and sediment control measures. Silt fences shall be used to minimize soil or intertidal sediment transport into the waterway.

1.15 Pollution Control

.1 See Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) for requirements regarding pollution control.

1.16 Spills or Release of Deleterious Substances

.1 The Contractor shall immediately contain and assess the spill, provide appropriate notifications, and take the necessary steps to prevent further discharge. The Contractor is responsible for immediate cleanup of the spill and restoration of the area to the satisfaction of the Departmental Representative and other regulatory agencies, where involved.

.2 All workers shall be fully aware of the spill prevention and response procedures including notification of the Departmental Representative.

.3 Report all spills in accordance with the British Columbia Spill Reporting Regulation and the EMP.

.4 The Departmental Representative shall be immediately informed of all spills that occur at the Work Site, at the Contractor Off-Site Offload Facility, during transportation of materials, or at any location where activities are performed under the Contract. In addition, the Contractor shall follow spill regulations as provided in FSE Directive SE5 – Spill Response, Appendix E.

.5 Further information on dangerous goods emergency cleanup and precautions including a list of companies performing this work can be obtained from the Transport Canada 24-hour number (613) 996-6666 collect.

.6 Spill kits will be kept within the Work Site and Contractor Off-Site Offload Facility during all project phases.

.7 The Contractor shall take due care to ensure no deleterious materials, including sediment-laden runoff, leave the Work Site or Contractor Off-Site Offload

Facility or enter any surface water, stormwater, or sanitary sewers at or near the Work Site or Contractor Off-Site Offload Facility.

.8 The use of any paints, corrosion protective coatings, wood preservatives, or any other potentially deleterious substances that may be applied to surfaces that will have contact with the marine environment, shall be in accordance with Esquimalt Harbour – Practices and Procedures – April 2016 (Appendix A).

.9 Any land-based equipment remaining on site overnight shall have appropriately placed drip pans.

.10 The rinse, cleaning water, or solvents for glues, wood preservatives, and other potentially harmful or toxic substances should be controlled so as to prevent leakage, loss, or discharge into the storm drain system or into the marine environment.

.11 Protect roadways at the Contractor Off-Site Offload Facility from tracking of mud, soil, sediment, and debris throughout the work.

.12 Prevent discharges containing asphalt, grout, concrete, or other waste materials from reaching storm drains or the marine environment. This includes, but is not limited to the following:

.1 Minimizing the washing of sand or gravel from new asphalt, debris from drilling or cutting, or other materials into storm drains and the marine environment by sweeping.

.2 Application of fog seals, tack coats, or other coatings, if required, during periods when rainfall is unlikely to occur during application.

.3 Cleaning equipment off site.

.4 Protection of drainage structures with filter fences, if required.

.13 During the purging of tanks and associated lines, procedures must prevent the release of any fuels to the surface, surface water, catch basins, or soils within or surrounding the Work Site or Contractor Off-Site Offload Facility.

1.17 Noise and Lighting Control

.1 The Contractor shall comply with local ordinances regarding noise control while conducting activities at the Work Site.

.2 The Contractor is to meet the intent of Township of Esquimalt, Colwood, and View Royal Noise By-laws at the Work Site boundary or modify work activities. Noise restrictions apply within the hours of 7:00 a.m. to 7:00 p.m. between Monday and Friday and 10:00 a.m. to 7:00 p.m. on Saturday. The Contractor shall undertake noisier work activities during daytime hours and modify activities based on noise monitoring and resident feedback.

.3 All construction equipment shall be operated with exhaust systems in good repair to minimize noise.

.4 Ensure that noise control devices (i.e., mufflers and silencers) on construction equipment are properly maintained.

.5 The Contractor shall implement use of lighting shrouds for work to be completed during night-time hours to minimize lighting disruptions to local residents.

1.18 Notification

.1 The Departmental Representative will notify the Contractor, in writing, of observed noncompliance with federal, provincial, state, or municipal environmental laws or regulations, permits, and other elements of the Contractor's EPP or the EMP. Notwithstanding this notification process, the Contractor shall be responsible for conducting all construction activities in a manner compliant with these regulations. Although provincial laws and municipal by-laws generally do not apply on federal lands, the Contractor will respect provincial laws and municipal by-laws and rules at the Work Site.

.2 The Contractor shall inform the Departmental Representative of proposed corrective action after receipt of such notice, and take such action for acceptance 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.

1.19 Species at Risk

.1 Refer to the Colwood Jetties Remediation Project, Environmental Effects Determination Report (Appendix B) for information on Species at Risk (SAR) that have a potential to occur within or adjacent to the Work Site.

.2 Dive surveys will be implemented by the Departmental Representative prior to construction works to identify, and if encountered, relocate, Northern Abalone.

.3 Marine mammal monitoring will be implemented by the PWGSC Environmental Monitor during construction activities, with a process in place to temporarily stop works if marine mammals are observed, as per the EMP.

.4 Should a SAR be encountered, measures are to be implemented to avoid destruction, injury, or interference with the species, its residence, and/or its habitat (e.g., through siting, timing, or design changes). If the foregoing cannot be avoided, the Contractor shall cease work and contact the Departmental Representative for advice regarding mitigation measures.

.5 In order to provide protection of fisheries resources during critical time periods in Esquimalt Harbour (April 1 to May 31), all in-water work with the potential to impact herring egg masses and/or emergent larvae will be stopped for ten (10) to fourteen (14) working days if herring spawn are observed within the project area.

In-water work activities shall not recommence until egg hatching is complete as confirmed by Departmental Representative.

.6 The Contractor shall stop work if herring spawn is observed on equipment and will not re-commence until the eggs have hatched and detached from the equipment.

.7 In the event that it is determined by the Departmental Representative or the PWGSC Environmental Monitor that the project likely may have unexpected adverse effects on a SAR, the Contractor will cease work and contact the Departmental Representative for advice regarding mitigation measures.

1.20 Migratory Birds/Wildlife Habitat

.1 Ensure that all works are in compliance with the Migratory Birds Convention Act. If the Contractor, in the course of its work, identifies nesting birds within the Work Site, the Departmental Representative shall be notified immediately.

.2 Restrict vehicle movements to construction areas and access roads and avoid harassment of animals.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. 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 work. The intent of this section is to require the Contractor to establish a necessary level of control that will:

.1 Provide sufficient information to assure both the Contractor and the Departmental Representative that the Specification requirements are and 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 ensure that all materials and completed construction elements conform to the Drawings, Specifications, and other requirements. 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 Contactor shall refer to the Unit Price Table for details regarding measurement and payment for the Contract work.

1.3 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 35 13.43 (Special Project Procedures for Contaminated Sites)

.3 Section 01 35 43 (Environmental Procedures)

.4 Section 02 21 13 (Surveying and Positioning Control)

.5 Section 35 20 23 (Remedial Dredging, Barge Dewatering and In-Water Transportation)

.6 Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal)

.7 Section 35 37 10 (Material Placement)

1.4 Definitions – Not Used

1.5 Submittals

.1 Within fifteen (15) working days following date of Contract Award, submit the QC Plan for review and acceptance by the Departmental Representative. The Contractor QC Plan shall include:

.1 Description of procedures for communicating progress testing and other data with the Departmental Representative.

.2 Procedures for survey and positioning control. See Specification Section 02 21 13 (Surveying and Positioning Control) for additional details regarding required information.

.3 Personnel, procedures, methods, instructions, records, and forms to be used to control the work and verify that the work conforms to the Contract documents.

.4 Description of the quality control organization, including an organization chart showing the various quality control team members, along with their designated responsibilities and lines of authority. At a minimum, identify the Project Manager, Site Supervisor(s), Quality Control Supervisor, Surveyor or Engineer, and Health and Safety Coordinator.

.5 Acknowledgement that the quality control staff will conduct inspections for all aspects of the work specified, and shall report to the Quality Control Supervisor, or someone of higher authority in the Contractor's organization.

.6 The name, qualifications, duties, responsibilities, and authorities of each person assigned a primary quality control function.

.7 Testing methods, schedules, and procedures used to report quality control information to the Departmental Representative, including samples of the various reporting forms.

.2 Submit four (4) copies of all Inspection and Laboratory Test Reports to the Departmental Representative within two (2) working days following completion of inspection or receipt of analytical data from a testing laboratory.

.3 Provide copies to subcontractor of work being inspected or tested.

1.6 References – Not Used

1.7 Quality Control Organization

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

.2 Personnel: A staff shall be maintained under the direction of the Quality Control Supervisor to perform all quality control activities. The actual number of staff during any specific work period may vary to cover shift needs and rates of performance. The personnel of this staff shall be fully qualified by experience and technical training to perform their assigned responsibilities and shall be directly hired for the work by the Contractor.

1.8 Inspection

.1 The Contractor will allow the Departmental Representative access to the work. If part of the work is in preparation at locations other than the Work Site (i.e., the Contractor Off-Site Offload Facility), the Contractor shall allow access to such work whenever and wherever it is in progress.

.2 Give timely notice requesting inspection if work is designated for special tests, inspections, or reviews by the Departmental Representative's instructions.

.3 If the Contractor covers, or permits to be covered, work that has been designated for special tests, inspections, or reviews before such is made, uncover such work, have inspections or tests satisfactorily completed, and make good such work.

1.9 Independent Inspection Agencies

.1 Independent inspection/testing agencies will be engaged by the Departmental Representative for the purpose of inspecting or testing portions of the work, as applicable. Cost of such services will be borne by the Departmental Representative.

.2 Employment of inspection/testing agencies does not relax responsibility to perform work in accordance with Contract documents.

.3 If defects are revealed during inspection or testing, additional inspection or testing will be required to ascertain the full degree of defect. The Contractor shall correct defects and irregularities as advised by the Departmental Representative at no extra cost to the Contract. The Contractor shall pay costs for re-testing and re-inspection as necessary.

1.10 Access to Work

.1 The Contractor shall allow inspection/testing agencies access to Work Site and off-site facilities (i.e., Contractor Off-Site Offload Facility, Disposal Facility, Treatment Facility, Processing Facility, and material source locations) as applicable.

.2 The Contractor shall make accessible to the Departmental Representative all construction equipment that is employed for completion of the work.

.3 The Contractor shall cooperate to provide reasonable facilities for such access.

1.11 Procedures

.1 Notify the appropriate entity and the Departmental Representative in advance of requirements for tests so attendance arrangements can be made.

.2 Submit samples or materials required for testing, as requested in the Specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in work.

.3 Provide labor and facilities to obtain and handle samples and materials at the Work Site and Contractor Off-Site Offload Facility. Provide sufficient space to store samples as necessary.

.4 Complete required materials testing as described in the Specifications for which the work applies. Results of laboratory testing shall be reviewed by the Departmental Representative to determine compliance with the requirements of the work.

1.12 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 the Departmental Representative as failing to conform to the Contract documents. Replace or re-execute in accordance with the Contract documents at no cost to the Contract.

.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 the Contract documents, the Departmental Representative will deduct from the Tender Price the difference in value between work performed and that called for by Contract documents, the amount of which will be determined by the Departmental Representative.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers mobilization and final demobilization for the work.

.2 Mobilization shall include: all pre-construction submittals; the establishment of necessary site offices including office trailers for the Departmental Representative and consultants as specified in Specification Section 01 51 00 (Temporary Facilities), site perimeter fencing, site preparation, and other temporary facilities including utility connections; Work Site and Contractor Off-Site Offload Facility site preparation and maintenance, including any applicable rent or other payments required to obtain and operate the Contractor Off-Site Offload Facility; Processing Facility site preparation and maintenance; the set-up of site survey control monuments; development and implementation of all environmental protection measures; and cost of maintaining bonds and insurance as required.

.3 Mobilization shall include: all work required to prepare the Contractor's dredging plant and equipment, backfill placement equipment, and all other required equipment, labor, supplies, and incidentals for transit; moving plant, equipment, labor, supplies, and incidentals to the Work Site and Contractor Off-Site Offload Facility; making ready for work; and maintaining plant and equipment in working condition at the site during the construction period.

.4 Final demobilization shall include: project closeout; all things necessary to remove all construction equipment, floating plant, and excess materials from the Work Site and Contractor Off-Site Offload Facility; dismantling and removal of all temporary facilities; and the cleanup of the Work Site and Contractor Off-Site Offload Facility to a condition satisfactory to the Departmental Representative at completion of the work.

.5 Items which are not to be included in mobilization/demobilization are:

.1 Any portion of the work covered by a specific Tender Item or other incidental work which is to be included in a Tender Item.

1.2 Related Sections – Not Used

1.3 Measurement and Payment Procedures

.1 Mobilization and Demobilization will not be measured for payment.

.2 Mobilization will be paid for at the Lump Sum Tendered Price for MOBILIZATION. Payment shall include all costs applicable to mobilization as described in this section. The Lump Sum Tender for MOBILIZATION shall be paid on completion of all applicable items to the satisfaction of the Departmental Representative.

.3 Supply and set up of plant and equipment not specifically noted in this section shall be deemed to be incidental to the work and shall not be covered by the Lump Sum Tender Item for MOBILIZATION.

.4 Demobilization will be paid for at the Lump Sum Tendered Price for DEMOBILIZATION. Payment shall include all costs applicable to demobilization as described in this section. The Lump Sum Tender for DEMOBILIZATION shall be paid upon completion of all applicable items to the satisfaction of the Departmental Representative at completion of the work.

1.4 Definitions – Not Used

1.5 Submittals – Not Used

1.6 References – Not Used

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section presents requirements for establishment of temporary facilities at the Work Site as part of the work.

.2 The On-Site Staging Areas, and locations where temporary facilities will be made available to the Contractor at the Work Site during the work, are shown on the Drawings.

.3 The Contractor shall install, maintain, and operate all temporary facilities as long as needed for the safe and proper completion of the work.

.4 If any damage to DND utilities occurs and is attributable to the Contractor's actions, the Contractor shall immediately notify the Departmental Representative and provide incident reports, and shall immediately repair any such damage to satisfaction of the Departmental Representative.

1.2 Measurement and Payment Procedures

.1 Measurement and payment for temporary facilities shall be by week and will be paid for under the allowance Tender Item for SITE FACILITIES OPERATIONS.

1.3 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 35 13.43 (Special Procedures for Contaminated Sites)

.3 Section 01 50 00 (Mobilization and Demobilization)

.4 Section 01 74 11 (Cleaning)

1.4 Definitions

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

1.5 Submittals

.1 The Contractor shall submit layout drawings for the Work Site, including the On-Site Staging Areas, to the Departmental Representative as described in and in accordance with schedule requirements presented in Section 01 35 13.43 (Special Procedures for Contaminated Sites) as part of the Construction Work Plan.

.2 Prior to initiating work at the On-Site Staging Areas, qualified Contractor’s personnel must submit to the Departmental Representative’s satisfaction a brief

conditions inspection report, consisting of photographs of the property, objects, and structures that may be damaged.

1.6 References – Not Used

1.7 Access to Site

.1 All individuals requiring access to the On-Site Staging Areas (including Contractor and subcontractor staff) shall refer to requirements of the Security Requirements Checklist (SRCL) administered by the Military Police Unit Esquimalt. All individuals must be registered with the Canadian Industrial Security Directorate (CISD) and be granted a Designated Organizational Screening (DOS) at the level of Reliability. In addition, all individuals will be required to be in possession of, at a minimum, a Reliability Security Status Screening (RSSS). The SRCL is provided as a Reference.

.2 Vehicular movement in and out of the Work Site will pass through a check point and be monitored by Canadian Forces Base (CFB) Esquimalt security.

.3 Access to On-Site Staging Areas after work hours must be provided to DND personnel in the event of an emergency (i.e., double lock system with Contractor and DND/Commissionaire- provided locks).

.4 The Contractor is required to use only the designated entrance to access the Work Site as shown on the Drawings, for deliveries to the site, and access to the On-Site Staging Areas.

.5 Use of the On-Site Staging Areas will be granted to the Contractor through the Departmental Representative.

.1 The On-Site Staging Areas made available to the Contractor for this Contract is to be used for parking, office space, equipment staging, and loading/unloading purposes only.

.2 No stockpiling or storage of dredged sediment or debris shall occur at the On-Site Staging Areas, without written acceptance from the Departmental Representative.

.3 All export of dredged sediment, Dredge Debris, and Demolition Debris shall be performed by barge.

.4 All import of fill materials shall be performed by barge.

.5 The On-site Staging Areas shall be protected against potential fuel spills or leakage from equipment that is staged at the On-site Staging Areas.

.6 All roadways and walkways outside of the Contractor's On-Site Staging Areas must be kept clear of materials and equipment at all times.

.7 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 within the vicinity of the Work Site.

.8 Refer to the DND Reference Documents (Appendix A) for imposed live loading restrictions on the D Jetty structure.

1.8 Storage Facilities and Site Office Space

.1 The Contractor's storage and office space will be limited to the On-Site Staging Areas, as shown on the Drawings.

.2 The Departmental Representative must accept the layout drawings for the On-Site Staging Areas prior to construction of the On-Site Staging Areas.

.3 The Contractor shall provide, install, commission, clean, and maintain two (2) temporary site offices within the On-Site Staging Areas for the sole use of the Departmental Representative's consultant team and the Departmental Representative, respectively, for the duration of the project. The temporary site offices shall comply with the following requirements:

.1 Dimensions:

.1 Minimum width = approximately 3.0 metres (m; 10 feet)

.2 Minimum length = approximately 9.8 m (32 feet)

.2 Utilities, Safety, and Security:

.1 Electrical power (120 volts for lighting and wall outlets; sufficiently distributed wall outlets, lighting, and heating for typical office environment), including exterior electrical outlet for refrigerator and freezer.

.2 The Contractor shall provide access to handwashing and washroom facilities within the On-Site Staging Area.

.3 Appropriate fire protection (portable hand-held extinguishers at a minimum) and appropriate smoke detectors with audible alarm.

.4 First aid station (including eye wash station and basic first aid kit).

.3 Appliances:

.1 Electric baseboard heaters (to provide sufficient heating to maintain 20 °C internal ambient temperature) in both offices.

.2 The consultant team's office will require:

.1 Full-size refrigerator (minimum 12 cubic feet capacity, all refrigerator and no freezer) inside the office.

.2 Chest freezer (for ice packs; minimum 7 cubic feet capacity) inside the office.

.3 The Departmental Representative's office will require:

.1 A small refrigerator.

.4 Office complex requirements:

.1 Stairs and landings with handrails as necessary.

.2 Four workstations (desks and swivel chairs) and part-height divider walls to form temporary work areas.

.3 One mudroom area near entrance for field gear (approximately 3 m [10 feet] by 3 m [10 feet]) with hooks on wall for hanging wet clothing and benches for changing into and out of field gear.

.4 For the consultant team's office, the following will be required:

.1 Work bench (typical kitchen counter height; minimum dimensions 0.9 m [3 feet] deep by 1.8 m [6 feet] long; can be a folding table) with power available and the floor area in front of the bench clear to a minimum distance of 1.5 m (5 feet) from the bench.

.5 One of the two site offices must contain a board room to facilitate meetings.

.5 Other required services as part of this scope:

.1 Mobilization/de-mobilization.

.2 Site must be cleared, flat, compact, and accessible for delivery and installation of the temporary site office.

.3 Use of standard non-engineered blocking/foundation plan.

.4 Pressure-treated foundation and exterior skirting with vents (with access provided underneath for storage of coolers and equipment).

.5 Electrical work (including inter-module connections).

.6 The operating and maintenance cost of the site office shall be paid by the Contractor.

.7 The site office shall be cleaned in conjunction with Contractor plans for cleaning other on-site office trailers (during working hours, timing to be mutually agreed in advance), unless this requirement is relaxed by the Departmental Representative. Maintain the site office in a state of good repair, to the satisfaction of the Departmental Representative.

.8 Comprehensive warranty and insurance coverage for the full period that the site office is operational.

.6 The temporary site office is to be provided on (or just before) the Contractor's on-site mobilization date, and is to remain operational until the Substantial Completion date.

.7 The acceptance for all site office details, delivery, installation, and removal shall be coordinated with and accepted by the Departmental Representative.

.8 The Contractor shall decommission and remove the site offices at the end of the construction.

.9 The site offices shall remain the property of the Contractor.

.4 The Contractor shall provide means of access (gate keys for security perimeter) for the Departmental Representative and designated consultant team personnel.

1.9 Power and Light

.1 The Contractor shall coordinate with the Departmental Representative regarding availability of power and light at the On-Site Staging Areas. The Contractor shall not rely on availability of power and light at the On-Site Staging Areas.

1.10 Water Supply

.1 Water is available at the On-Site Staging Areas.

.2 Contractor shall coordinate with the Departmental Representative regarding access to water.

1.11 Temporary Communication Facilities

.1 Provide and pay for temporary telephone fax, data hook-up, lines, and equipment necessary during the construction period.

.2 Provide wireless internet service.

1.12 Temporary Heating and Ventilation

.1 Provide temporary heating and ventilation required during construction period, including attendance, maintenance, and fuel.

.2 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.3 Be responsible for damage to work due to failure in providing adequate heat and protection during construction.

1.13 Sanitary Facilities

.1 The Contractor is responsible for providing its own washroom facilities for its crew and subcontractors and sufficient washroom facilities for the Departmental Representative and its consultants.

1.14 Construction Parking

.1 Parking space for use by the Contractor shall be within the approved confines of the site. A minimum of four (4) parking spaces shall be provided for the sole use of the Departmental Representative and consultant team. It shall not disrupt the performance of work, nor shall it disrupt the CFB Esquimalt operations. Personal vehicles will not be permitted.

.2 Additional parking requirements shall be arranged by and paid for by the Contractor, off site.

1.15 Access to Waterborne Equipment

.1 The Departmental Representative will provide access to waterborne equipment (e.g., marine derricks, barges, and tugboats) from the small float at the northwest corner of D Jetty and from the boat ramp at Yew Point, as shown on the Drawings.

.2 The boat ramp at Yew Point and adjacent fenced storage area shall be kept clear at all times when not in use by the Contractor. DND requires access to these areas at all times.

1.16 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 by-laws, and in accordance with Section 01 35 35 (DND Fire Safety Requirements).

.2 Burning rubbish and construction waste materials is not permitted on site.

1.17 Temporary Erosion and Sedimentation 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. Refer to Section 01 35 43 (Environmental Procedures).

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

1.18 Removal of Temporary Facilities

.1 Remove temporary facilities from the Work Site when all work is completed and accepted by the Departmental Representative.

.2 Clean and repair damage caused by installation or use of temporary facilities.

1.19 Cleanup

.1 Conduct all project cleanup activities in accordance with Section 01 74 11 (Cleaning).

.2 Remove construction debris, waste materials, and packaging material from the Work Site daily.

.3 Clean dirt or mud tracked onto paved or surfaced roadways.

.4 Store materials resulting from work activities that are salvageable.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. PART 1 – GENERAL

1.1 Project Cleanliness

.1 Maintain work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Departmental Representative or other contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by the Departmental Representative. Do not burn waste materials on site.

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.4 Provide on-site dump containers for collection of waste materials and debris.

.5 Provide and use marked separate bins for recycling.

.6 Dispose of waste materials and debris off site.

.7 Store volatile waste in covered metal containers, and remove from premises at the end of each working day.

.8 Schedule cleaning operations so that resulting dust, debris, and other contaminants will not fall in Harbour or on wet, newly painted surfaces and will not contaminate systems.

1.2 Final Cleaning

.1 When work is substantially performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining work.

.2 Remove waste products and debris other than that caused by others, and leave the Work Site clean and suitable for occupancy.

.3 Prior to final review, remove surplus products, tools, construction machinery, and equipment.

.4 Remove waste materials from site at regularly scheduled times or dispose of as directed by the Departmental Representative. Do not burn waste materials on site.

.5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.6 Sweep and wash clean paved areas.

.7 Remove debris and surplus materials from accessible concealed spaces.

1.3 Waste Management and Disposal

.1 Separate waste materials for reuse and recycling.

.2 Remove recycling containers and bins from site and dispose of materials at appropriate off site facility.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – NOT USED

END OF SECTION

1. 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 by 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 Work Site.

1.2 Measurement and Payment Procedures

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

1.3 Related Sections – Not Used

1.4 Definitions – Not Used

1.5 Submittals – Not Used

1.6 References – Not Used

1.7 Inspection and Declaration

.1 Contractor Inspection: The Contractor and subcontractors shall conduct inspection of the work, identify deficiencies and defects, and repair as required to conform to requirements of the Contract documents.

.1 Notify the Departmental Representative, in writing, of satisfactory completion of Contractor Inspection and that corrections have been made.

.2 Request Departmental Representative Inspection.

.2 Departmental Representative Inspection: The Departmental Representative and Contractor will perform inspection of the work to identify defects or deficiencies. The Contractor shall correct work accordingly, as advised by the Departmental Representative, at no extra cost to the Contract.

.3 Completion Tasks: Submit written certificates in English that tasks have been performed as follows:

.1 Work: Completed and inspected for compliance with Contract documents.

.2 Defects: Corrected and deficiencies completed.

.3 Certificates required by local authorities having jurisdiction and utilities: Submitted.

.4 Work: Complete and ready for Final Inspection.

.4 Final Inspection: When Completion Task items are completed, request Final Inspection of the work by the Departmental Representative, and the Contractor. If work is deemed incomplete by the Departmental Representative, complete outstanding items and request re-inspection.

1.8 Submission

.1 Submit to the Departmental Representative, four (4) final copies of Record Drawings and other required post-construction documents in English within two (2) weeks of completion of work.

.1 The Record Drawings shall be submitted according to requirements in Section 02 21 13 (Surveying and Positioning Control), and will include a hard copy set and electronic version of Contract Drawings and Specifications, with changes recorded in red. Each document shall be marked and stamped "As-Built" by the Contractor.

.2 Submit to the Departmental Representative, one (1) copy of the Certificate of Completion.

1.9 Format

.1 Drawings: Provide with reinforced punched binder tab.

.1 Bind in with text; fold larger drawings to size of text pages.

.2 Provide four (4) CDs in *.dwg file format, with all record information on the CDs.

1.10 Recording Information on Project Record Documents

.1 Record information on a set of blue-line/black-line drawings.

.2 Use felt tip marking pens, maintaining separate colours for each major item, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal work until required information is recorded. Meet with the Departmental Representative, if requested, to review the status of as-built drawings.

.4 Contract Drawings and shop drawings: Mark each item to record actual construction, including:

.1 Measured depths of dredged area in relation to Chart Datum.

.2 Measured horizontal and vertical locations of each dredged area.

.3 Measured locations and magnitude of dredge slope. Field changes of dimension and detail.

.4 Changes made by change orders.

.5 Details not on original Contract Drawings.

.6 References to related shop drawings and modifications.

.5 Contract Specifications: Mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product/material 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 for site records.

.8 Any additional information provided as part of daily and weekly construction report, in a digital format.

1.11 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 and handover.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION – 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 Tender documents.

.3 The Contractor may complete Progress Surveys using in-house survey resources. The Contractor shall employ a third-party (i.e., not use the Contractor's own survey crew to manage survey work) licensed professional surveyor, member of the Association of British Columbia Land Surveyors (ABCLS), member of the Applied Science Technologists & Technicians of British Columbia (ASTTBC) with certification/designation as a Registered Site Improvement Specialist (RSIS), or Professional Engineer that is licensed to perform bathymetric and topographic surveys in British Columbia to conduct Pre-Construction and Post-Construction Surveys.

.4 Methods and procedures for hydrographic surveys shall be in accordance with or exceed the accuracy requirements of "Navigation and Dredging Support Surveys" per the Hydrographic Surveying Engineering and Design Manual (EM 1110-2-1003) as prepared by U.S. Army Corps of Engineers (USACE), dated January 1, 2002. Should there be discrepancies between the Hydrographic Surveying Engineering and Design Manual and these Specifications, the more strict survey requirements shall take precedence unless the Contractor obtains clarification from the Departmental Representative otherwise.

.1 A copy of the Hydrographic Surveying Engineering and Design Manual (EM 1110-2-1003) can be viewed and downloaded from: http://publications.usace.army.mil/publications/eng-manuals/EM_1110-2-1003_pfl/toc.htm.

.5 The Contractor shall perform the Pre-Construction Survey prior to conducting any dredging or debris removal work.

.6 The Contractor shall perform Post-Construction (final) Surveys following the Departmental Representative's 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.

.7 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 or engineer 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 extra cost to the Contract.

.8 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 Pre-Construction, Progress, and Post-Construction Survey work. The Contractor shall accommodate the Departmental Representative's surveyor.

.9 The Contractor shall establish its survey and positioning control to provide an accurate method of horizontal and vertical control before any in-water work starts.

.10 The Contractor shall provide daily progress surveying and positioning control, as described further in this section, to provide quality control of the work and to calculate or verify volumes, areas, limits, positions, and other aspects of the work.

.11 Progress Survey data collected by the Contractor shall be used for work progress tracking and for monthly progress payment for work completed.

.12 The Contractor shall calculate completed in situ quantities for dredging and material placement, based on survey results, for progress reporting and measurement and payment purposes.

.13 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 amount based on the Contractor's estimate of effort required to meet the needs of the work, tendered as SURVEYS. The lump sum cost 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.

1.3 Related Sections

.1 Section 35 20 23 (Remedial Dredging, Barge Dewatering and In-Water Transportation)

.2 Section 35 37 10 (Material Placement)

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, the Contractor shall submit the name of the licensed surveyor, member of the ABCLS, member of the ASTTBC with certification/designation as an RSIS, or Professional Engineer employed by the Contractor who will be responsible for preparation and submittal of the Record Drawings of the constructed works.

.2 Record Drawings, showing the final accurate "as-built" condition of the constructed works, prepared, sealed, and signed by a licensed surveyor, member of the ABCLS, or Professional Engineer employed by the Contractor, shall be submitted to Departmental Representative as required by Section 01 78 30 (Closeout Submittals).

.3 As part of the Quality Control Plan, in accordance with Section 01 33 00 (Submittal Procedures), the Contractor shall prepare a Survey and Positioning Control Plan that describes the means and methods that will be implemented for all surveying activities required for the work. In-water construction activities shall not begin until: 1) the Quality Control Plan has been reviewed and accepted by the Departmental Representative. At a minimum, the Survey and Positioning Control 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 Daily and 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.

.4 Pre-Construction, Progress, and Post-Construction Surveys:

.1 Surveys shall be completed using the Horizontal Universal Transverse Mercator (UTM) Zone 10N, North American Datum 1983 (NAD83 Datum) and Vertical (Chart Datum [CD]) provided in Section 01 11 55 (General Instructions) and on the Drawings.

.2 The Contractor's licensed surveyor or engineer shall stamp all the Departmental Representative-accepted Pre-Construction and Post-Construction Surveys. The licensed surveyor or engineer does not need to stamp the Progress Surveys.

.3 Submit all surveys to the Departmental Representative in hard copy drawing format and electronic drawing format as described below.

.4 Submit Pre-Construction Survey and calculated quantities to the Departmental Representative at least two (2) weeks prior to start of in-water construction activities.

.5 Submit daily Progress Surveys and calculated quantities to the Departmental Representative as part of the Contractor's Daily Construction Report.

.6 Submit Post-Construction Surveys and calculated quantities to the Departmental Representative within twenty-four (24) hours after completing the Post-Construction Survey, and as part of the Contractor's Weekly Construction Report.

.5 Hard Copy Drawing Requirements:

.1 Provide plan view contour drawing, using 0.2-metre (m) 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-m spacing between cross sections or at the Departmental Representative-requested spacing. Cross section information shall show the pre-construction elevations, progress or post-construction elevations, and the design template (elevations and grades).

.4 Indicate on the Drawing, at a minimum, the date of survey, datums, extent of survey coverage, elevation markings (for spot elevations and contour lines), locations of cross sections, scale bar, and licensed surveyor or engineer stamp (for Pre-Construction and Post-Construction Surveys).

.6 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 Work Site basemap file in *.dwg format for Contractor use.

.7 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, barge tonnage estimates (based on barge displacement measurements), 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 Tender Item listed in the Unit Price Table. Each quantity shall also be broken down into payable quantities, and Payable Overdredge Allowance, Excessive Dredging, Non-Payable Overplacement Allowance, and Excessive Overplacement quantities.

.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 Survey and Positioning 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 – NOT USED

3. PART 3 – EXECUTION

3.1 Survey Equipment

.1 The Contractor's survey team and the Contractor's third party licensed surveyor or engineer shall use multi-beam survey equipment for all Progress, Pre-Construction, and Post-Construction Surveys.

.2 The Contractor shall employ an accepted method to locate and control horizontal position by Real-Time Kinematic Global Positioning System (RTK-GPS) or Post-Processed Kinematic Global Positioning System (PPK GPS). The Contractor must utilize the BC Active Control System (BCACS) Municipal Data – Capital Regional District (CRD) RTK base station correction stream; in particular, utilize the base station data from station BCES for all RTK surveys. Post-processed survey positioning data must utilize the BCACS BCES for corrections. If the

Contractor proposes to use an alternative positioning method, that method must be submitted to the Departmental Representative and accepted prior to the start of the work.

.3 Bed elevations, converted to the project Vertical Datum, shall be determined using spot elevation measurements and survey control points.

.4 The horizontal accuracy for measured elevations shall be +/- 0.25 m; the vertical accuracy shall be +/- 0.1 m.

3.2 Ranges and Tide Gauges

.1 The Contractor shall furnish, set, and maintain in good order, all ranges, buoys, tide gauges, and other markers necessary to define the work and to facilitate inspection. The Contractor shall establish and maintain a tide gauge or board in a location where it may be clearly seen during in-water construction operations and inspections. The Contractor shall also install an automatic recording tide gauge with water level sensor. The tide gauge shall provide a continuous recording of tidal change for every 15-minute interval or each 0.03-m change, whichever occurs first. Tidal changes shall be recorded in Chart Datum, with these changes visually provided to the dredging and material placement equipment operator at all times during the construction activities to allow proper adjustment of dredge and placement elevations. Conversions between Chart Datum and Geodetic Datum are provided in the Drawings.

3.3 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.

.2 Positioning Methods

.1 Observation data will be recorded electronically.

.2 Observed ranges shall be corrected for scale, calibration, and automatic variations when present.

.3 Accuracy of horizontal position shall be within +/- 0.25 m.

.4 Accuracy for vertical positioning shall be +/- 0.1 m.

.5 The Contractor shall provide verification of positioning accuracy throughout completion of in-water construction activities, and submit documentation as part of the Weekly Construction Report.

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

.1 Pre-Construction Survey

.1 The Contractor shall conduct a pre-construction multi-beam bathymetric survey and supplemental surveys as necessary to fully identify pre-construction elevations and grades throughout the Work Site. This Pre-Construction Survey shall be completed and submitted to the Departmental Representative at least two (2) weeks prior to the start of dredging activities, and will be used as the basis for measurement and payment purposes.

.2 The Pre-Construction Survey shall cover all areas of work as shown on the Drawings, and extend at least 15 m past the water boundaries of the Work Site and under both the east and north berths of D Jetty, as well as under the portion of the gas float structure that is to remain in place.

.3 If vessels or other Obstructions prevent the Contractor from being able to fully survey all of the Work Site, the Contractor shall coordinate with the Departmental Representative to determine whether to rely upon the Contract Drawings in those areas or to rely upon initial Progress Survey in those areas to supplement the Pre-Construction Survey.

.2 Progress Surveys

.1 The Contractor shall provide daily (or less frequent only if accepted by the Departmental Representative) measurements of the previous day's work, using multi-beam survey equipment. 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 extra cost to the Contract.

.2 The survey data will accompany the Contractor's Daily Construction Report submitted to the Departmental Representative, including all electronic information and data from survey instruments.

.3 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.

.4 Required Dredging Progress Surveys

.1 The Contractor shall complete Required Dredging Progress Surveys on a daily basis to document daily progress for completion of Required Dredging activities. Results of daily Progress Surveys should accurately depict the daily progress of the dredging work and shall be submitted as part of the Contractor Daily and Weekly Construction Reports.

.2 When Required Dredging is completed as determined by the Contractor, the Contractor will conduct its Progress Survey over the entire dredge area and submit to the Departmental Representative to review.

.3 If all of the Required Dredging has not been satisfactorily completed, as determined by the Departmental Representative, the Contractor shall correct the deficiencies indicated in the survey, re-survey the area, and the Departmental Representative will review the re-survey to confirm that dredging has been satisfactorily completed. The cost for Contractor re-survey will not be cause for additional compensation to the Contractor.

.4 The Contractor's Required Dredging Progress Surveys will be used to determine post-required dredging elevations and for computing progress dredge volumes used for progress measurement and payment for the work.

.5 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, the Departmental Representative may choose to retain another surveyor or engineer mutually acceptable to both the Contractor and the Departmental Representative to resolve the discrepancy.

.5 Contingency Re-Dredging Progress Surveys

.1 Following evaluation of confirmation sampling data, the Departmental Representative may advise the Contractor to conduct additional dredging activities for removal of dredge residuals or Missed Inventory within select areas.

.2 The Contractor shall complete Contingency Re-Dredging Progress Surveys on a daily basis, during completion of additional dredging activities, to document progress for completion of the work. Results of daily Contingency Re-Dredging Progress Surveys should accurately depict the daily progress of the additional dredging work and shall be submitted as part of the Contractor Daily and Weekly Construction Reports.

.3 The Contractor and the Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for Required Dredging Progress Surveys.

.6 Backfill Material Placement Progress Surveys

.1 Following completion of all dredging activities and acceptance of the work by the Departmental Representative, the Departmental Representative will advise the Contractor to place Backfill Materials within areas shown on the Drawings.

.2 The Contractor shall complete Backfill Material Placement Progress Surveys on a daily basis to document daily progress for completion of material placement activities. Results of Backfill Placement Surveys should accurately depict the daily progress of the material placement work and shall be submitted as part of the Contractor Daily and Weekly Construction Reports.

.3 The Contractor and the Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for Required Dredging Progress Surveys.

.3 Post-Construction Surveys

.1 Required Dredging Post-Construction Survey

.1 Following completion of Required Dredging work and the Departmental Representative acceptance of the work completion, the Contractor shall conduct a Post-Construction Survey (for Required Dredging) that will be used for final measurement and payment for Required Dredging work.

.2 Results of the Post-Construction 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 Post-Construction Survey will be used as the Pre-Construction Survey for Contingency Re-Dredging activities, or Backfill Material placement activities, if no Contingency Re-Dredging is required.

.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 or engineer mutually acceptable to both the Contractor and the Departmental Representative to resolve the discrepancy.

.2 Contingency Re-Dredging Post-Construction Survey

.1 Following completion of Contingency Re-Dredging work and the Departmental Representative acceptance of the work completion, the Contractor shall conduct a Post-Construction Survey (for Contingency Re-Dredging) that will be used for final measurement and payment for Contingency Re-Dredging work.

.2 Results of the Post-Construction Survey (for Contingency Re-Dredging) 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 Post-Construction Survey (for Contingency Re-Dredging) will be used as the Pre-Construction Survey for Backfill Material placement activities.

.4 The Contractor and the Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for Required Dredging Post-Construction Survey.

.3 Structural Backfill (Type A and B) Material Placement Post-Construction Survey

.1 Following completion of Structural Backfill material placement activities (applies to both Type A and B) and the Departmental Representative acceptance of the work completion, the Contractor shall conduct a Post-Construction Survey of the Structural Backfill material placement that will be used for final measurement and payment purposes.

.2 Results of the Post-Construction Survey of the Structural Backfill material placement 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 and the Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for Required Dredging Post-Construction Survey.

.4 Underpier Cover Material Placement Post-Construction Survey

.1 Following completion of Underpier Cover material placement activities and the Departmental Representative's acceptance of the work completion, the Contractor shall conduct a Post-Construction Survey of the Underpier Cover material placement that will be used for final measurement and payment purposes.

.2 Results of the Post-Construction Survey of the Underpier Cover material placement 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 and the Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for Required Dredging Post-Construction Survey.

.5 General Backfill Material Placement Post-Construction Survey

.1 Following completion of General Backfill material placement activities and the Departmental Representative acceptance of the work completion, the Contractor shall conduct a Post-Construction Survey of the General Backfill material placement that will be used for final measurement and payment purposes.

.2 Results of the Post-Construction Survey of the General Backfill material placement 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 and the Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for Required Dredging Post-Construction Survey.

.6 Residuals Management Cover Material Placement Post-Construction Survey

.1 Following completion of Residuals Management Cover material placement activities and the Departmental Representative acceptance of the work completion, the Contractor shall conduct a Post-Construction Survey of the Residuals Management Cover material placement that will be used for final measurement and payment purposes.

.2 Results of the Post-Construction Survey of the Residuals Management Cover material placement 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 and the Departmental Representative shall follow the same procedures regarding acceptance of the work as described above for Required Dredging Post-Construction Survey.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers methods and procedures for dismantling and disconnection, of the floating camel/tire fenders and attachments, wharf safety ladders and attachments, miscellaneous designated jetty attachments/components and electrical utilities at the Work Site designated to be removed and subsequently reinstalled, in whole or in part, as described on the Drawings and as found in the field.

.1 Miscellaneous designated jetty attachments/components at D Jetty include all incidental components requiring removal during the fender system removal, including navigation lights, rubber buffer units, and any other peripheral item/component which requires reinstallation to match the D Jetty pre-dredge configuration.

.2 Miscellaneous designated jetty attachments/components at the gas float include all incidental components requiring removal.

.2 Relocation, storage, cleaning, and reinstallation of selective site demolition items are covered under Section 02 41 16.02 (Structure Relocation).

.3 Dismantling, disconnection, and extraction (and off-site disposal where not suitable for re-use) of existing timber piles at D Jetty and at the gas float are covered under Section 02 41 16.01 (Structure Demolition).

.4 Storage and reinstatement of existing timber piles at D Jetty and at the gas float, or supply and installation of new timber piles, are covered under Section 31 62 19 (Timber Piling).

1.2 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

.3 Section 01 35 13.43 (Special Project Procedures for Contaminated Sites)

.4 Section 01 35 29 (Health and Safety Requirements)

.5 Section 01 35 43 (Environmental Procedures)

.6 Section 01 74 11 (Cleaning)

.7 Section 02 41 16.01 (Structure Demolition)

.8 Section 02 41 16.02 (Structure Relocation)

.9 Section 02 55 10 (Dust Control)

.10 Section 26 05 00 (Common Work Results for Electrical)

.11 Section 31 62 19 (Timber Piling)

1.3 Measurement and Payment Procedures

.1 Selective site demolition items at D Jetty (floating camel/tire fenders, wharf safety ladders, and miscellaneous designated jetty attachments/components), to be dismantled, disconnected, and reinstalled in the work as shown on the Drawings, will not be measured individually. Payment for the aforementioned selective site demolition items at D Jetty will be made at the Lump Sum Price tendered for SELECTIVE SITE DEMOLITION: D JETTY – GENERAL. Payment shall be full compensation for all work in connection with the aforementioned selective site demolition items, as described in this section and on the Drawings.

.2 Selective site demolition items at the gas float (miscellaneous designated jetty attachments/components and electrical utilities), to be dismantled, disconnected, and reinstalled in the work as shown on the Drawings, will not be measured individually. Payment for the aforementioned selective site demolition items at the gas float, will be made at the Lump Sum Price tendered for SELECTIVE SITE DEMOLITION: GAS FLOAT – GENERAL. Payment shall be full compensation for all work in connection with the aforementioned selective site demolition items, as described in this section and on the Drawings.

.3 Dismantling, disconnection, and extraction (and off-site disposal where not suitable for re-use) of existing timber piles at the D Jetty structure and at the gas float structures will be measured to Section 02 41 16.01 (Structure Demolition), and payment shall include all costs in connection with such work as specified in that section.

.4 Storage and reinstatement of existing timber piles at the D Jetty structure and at the gas float structures, or supply and installation of new timber piles, where indicated on the Drawings, will be measured to Section 31 62 19 (Timber Piling), and payment shall include all costs in connection with such work as specified in that section.

.5 Demolition of structures at D Jetty and at the gas float will be measured to Section 02 41 16.01 (Structure Demolition), and payment shall include all costs in connection with demolition of structures as specified in that section.

.6 All costs associated with removal and disposal of Demolition Debris associated with selective site demolition work under this section shall be included within the relevant unit rate(s) for selective site demolition. No separate payment will be made for removal of Demolition Debris as Obstructions.

1.4 References

.1 CAN/CSA-S350-M19 80(R2003), Code of Practice for Safety in Demolition of Structures.

.2 Occupational Health and Safety Regulations, WorkSafeBC.

.3 National Building Code of Canada (NBCC), Part 8 – Safety Measures at Construction and Demolition Sites.

1.5 Definitions

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

1.6 Submittals

.1 In accordance with the requirements of Section 01 33 00 (Submittal Procedures), submit as part of the Construction Work Plan for review by the Departmental Representative the proposed method, sequencing of work and product data for demolition, dismantling, disassembly, and off-site disposal of the items designated for selective site demolition (including the proposed location and details of the Disposal Facility).

.2 Within the Construction Work Plan and the Environmental Protection Plan (EPP) include control measures, as required by the Environmental Management Plan (EMP), to be implemented to protect the environment during selective site demolition work.

1.7 Site Conditions

.1 Review environmental site information and the EMP and take precautions to protect environment.

.2 The Contractor shall inspect the Work Site to thoroughly familiarize himself with site conditions before starting selective site demolition work.

.3 For geotechnical investigation data reports, structure condition inspection reports (including dive video), and other background data, refer to the Data Reports listed in the Specification Index. Review all Data Reports for information regarding composition and condition of items to be demolished and geotechnical conditions.

.4 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify the Departmental Representative immediately. Do not proceed until written instructions have been received from the Departmental Representative.

.5 Notify the Departmental Representative at least twenty-four (24) hours before disrupting access or services at D Jetty or at the gas float.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION

3.1 Preparation and Protection

.1 Within ten (10) working days of Contract Award, inspect site with the Departmental Representative to verify extent and location of items designated for removal, disposal, and salvage and items to remain or to be re-used in the work.

.2 Do work in accordance with Section 01 35 29 (Health and Safety Requirements).

.3 Protect existing items designated to remain and items designated for salvage or re-use. In event of damage to such items, immediately replace or make repairs to acceptance of the Departmental Representative.

.4 Cut existing surfaces as required to accommodate new work.

.5 Remove items so shown or specified.

.6 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

.7 Patch and make good surfaces cut, damaged, or disturbed, to the Departmental Representative's acceptance. Match existing material, colour, finish, and texture.

.8 Making good is defined as matching construction and finishing materials and the adjacent surfaces such that there is no visible difference between existing and new surfaces when viewed from 1.5 metres in ambient light, and includes painting the whole surface to the next change in plane.

.9 Locate and protect electrical services. Preserve active services traversing site in operating condition.

.10 Notify and obtain acceptance of the Departmental Representative before starting demolition.

.11 Schedule work on electrical services to minimize disruption for DND operations.

.12 Ensure site demolition work is performed in accordance with provincial and federal environmental regulations.

.13 Perform site demolition work in accordance with the Occupational Health and Safety Regulations of WorkSafeBC.

.14 Keep noise, dust, and inconvenience to occupants and users to minimum and in accordance with Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), Section 01 35 43 (Environmental Procedures), Section 02 55 10 (Dust Control), the EMP, and the EPP.

.15 Carry out selective site demolition in conformance with Township of Esquimalt noise by-laws, and City of Colwood noise by-laws.

.16 Manage hazardous materials in accordance with provincial and federal environmental regulations.

.17 Prevent debris, dust, and any sediment laden waters from entering any drainage system, water course, or marine environment in line with DND Formation Safety and Environment (FSE) directives (attached to the Specifications), the EMP, and the EPP.

.18 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater, and wildlife or contribute to excess air and noise pollution.

.19 When cutting creosote timbers near or over water, ensure that all cuttings are contained and collected from the water, and ensure that any sheen or residue resulting from cutting creosote timbers is contained and cleaned up.

.20 Do not dispose of waste or volatile materials including, but not limited to, mineral spirits, oil, petroleum-based lubricants, or toxic cleaning solutions into watercourses or storm or sanitary sewers.

.21 Ensure proper disposal procedures are maintained throughout the project.

.22 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.

.23 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with provincial and federal environmental regulations.

.24 Do not disturb or damage items designated to remain in place.

.25 During all in-water and above-water demolition and pile extraction work, environmental protection control measures shall comply with the requirements of Section 01 35 43 (Environmental Procedures), Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), the EMP, and the EPP.

.26 Do not allow buoyant items that have been demolished or detached from their original position (i.e., floating debris) to float beyond the Work Site. Do not allow such floating debris to cause any hindrance or obstacle to marine traffic and DND operations. Identify and collect such floating debris on a daily basis, and dispose in accordance with the Specifications.

3.2 Removal, Storage and Re-Use (General)

.1 Selective site demolition materials and debris may be stockpiled within the Work Site at the sole discretion of the Departmental Representative, and then only at location(s) reviewed and accepted by the Departmental Representative.

.2 Remove and store materials designated to be salvaged or re-used, in a manner to prevent damage, at the Contractor's storage location. Advise the Departmental Representative in writing of designated storage location.

.3 Where items identified for selective site demolition and re-use have been in contact with contaminated seabed material, those items shall be decontaminated before being re-used in the work.

.4 Store and protect in accordance with requirements for maximum preservation of material.

.5 Handle salvaged materials as new materials.

.6 Label stored materials, indicating material type and quantity. All parts and components of electrical equipment specified for salvage are to be clearly labeled prior to removal to facilitate re-assembly. All components and parts should be packaged and labelled in a manner that prevents damage or loss.

.7 Label the location of storage areas for salvaged material and provide barriers and security devices. Designate appropriate security resources and other measures to prevent vandalism, damage, and theft.

.8 Locate stored materials convenient for re-use in new construction to eliminate double handling wherever possible.

.9 Where salvaged materials are to be re-used in the work, re-use such materials in accordance with the section of the Specifications relevant to the item in question.

.10 Stockpile materials designated for off-site disposal in location(s) that facilitate removal from site and examination by potential end markets, and that do not impede disassembly, processing, or hauling procedures.

.11 Dismantle items containing materials for salvage and stockpile salvaged materials at the Contractor's storage location.

.12 Handle and dispose of hazardous materials in accordance with provincial and federal environmental regulations.

.13 Remove stockpiled material, as directed by the Departmental Representative, when it interferes with construction activities.

.14 Once terminated, the Contractor shall megger/electrically test all cables that are to remain in place, to ensure no damage has been incurred during demolition or disconnection work, and that the cables remain in the same usable condition as found at start of the work.

3.3 Removal from Site and Disposal

.1 Except where salvage and re-use in the work is specified, the Contractor becomes the owner of, and is responsible for, any soil, sediment, debris, waste, jetty components designated for demolition, or other material once it is removed, dredged, or excavated to be loaded onto a vehicle, barge, or other vessel for transport to the Contractor Off-Site Offload Facility, Disposal Facility, Treatment Facility, or Hazardous Waste Management Facility.

.2 Except where re-use of materials in the work is required or specified, transport all selective site Demolition Debris off site only by use of waterborne transport. Do not use trucks to transport Demolition Debris from D Jetty or from the gas float.

.3 Remove materials that cannot be salvaged for re-use in the work, and dispose of in accordance with applicable codes at licensed facilities.

.4 Dismantle items containing materials for salvage and stockpile salvaged materials at the Contractor's storage location.

.5 Handle and dispose of hazardous materials in accordance with provincial and federal environmental regulations.

.6 Transport material designated for disposal by approved haulers to receiving organizations in accordance with regulations. Do not deviate from haulers and receiving organizations listed in the Construction Work Plan without prior written authorization from the Departmental Representative.

.7 Off-load, process, treat, and dispose of selective site demolition debris to receiving organizations in accordance with regulations. Do not deviate from the Contractor Off-Site Off-load, Processing, Treatment, and Disposal Facilities that are included in the Construction Work Plan without prior written authorization from the Departmental Representative.

3.4 Cleaning and Restoration

.1 Keep site clean and organized throughout selective site demolition work.

.2 For items that are required by the Specification to be cleaned (during removal, relocation, or reinstallation), use cleaning solutions and procedures that are effective and are not harmful to health, are not injurious to plants, and do not endanger wildlife or marine environment.

.3 Repair damage to adjacent structures and utilities caused by selective site demolition work, as directed by the Departmental Representative.

.4 Conduct Work Site restoration activities in accordance with Section 01 74 11 (Cleaning).

.5 Upon completion of project, remove debris, trim surfaces, and leave Work Site clean.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers the dismantling, extraction, and temporary storage of existing timber fender piles and corner dolphin piles at D Jetty (and disposal off site only as accepted by the Departmental Representative due to unacceptable condition for re-use), all as shown on the Drawings and as found in the field. Dismantling and disposal of steel bolting materials, miscellaneous steel materials, and attachments at existing fender piles, corner dolphin piles, and fender logs are also covered in this section.

.2 This section also covers the demolition of existing gas float structures, the dismantling, extraction, and temporary storage of existing timber pilings, and the disposal of debris arising from such demolition. Dismantling, extraction, and off-site disposal of steel bolting materials and miscellaneous steel materials to be demolished are also covered in this section.

.1 Existing timber pier structures and timber piled foundations to be demolished include: the gas float's timber support pilings, timber framing, and float locator piles, as shown on the Drawings and as found in the field.

.2 Existing miscellaneous jetty structures to be demolished include: the gas float's pivot ramp, as shown on the Drawings and as found in the field.

.3 This section also covers Pre-construction Condition Inspection of adjacent structures to be performed by the Contractor in advance of the start of any structure demolition work, and Post-construction Condition Inspection of adjacent structures at completion of construction. Pre-construction Condition Inspection and Post-construction Condition Inspection are to be performed for:

.1 D Jetty (including deck structure, all concrete piles, all timber fender piles, all underpier bracing timbers, small boat float, and pivot gangway).

.2 Gas float (including the float, locator piles, pivot gangway, timber piled bent, fixed access gangway, and concrete pier/abutment).

.4 This section also covers temporary fender protection for the existing D Jetty structure, and for temporary protection to underpier timber bracings at D Jetty.

.5 Temporary relocation, storage, and subsequent reinstatement of other structural items (such as the small concrete float and gangway at the northwest corner of D Jetty) is covered under Section 02 41 16.02 (Structure Relocation).

.6 Temporary removal and subsequent reinstatement (at same location) of the gas float is covered under Section 02 41 16.02 (Structure Relocation).

.7 Salvage, storage, cleaning, and reinstatement of the fender log system and wharf safety ladders at D Jetty is covered under Section 02 41 13 (Selective Site Demolition).

.8 Demolition, salvage, and disposal off site of miscellaneous concrete, steel, brick, timber, or rubber surface debris items at D Jetty designated to be disposed off site are covered under Section 02 41 13 (Selective Site Demolition).

.9 Demolition and disposal (or handing over to the Departmental Representative for unspecified future uses, or salvage, storage, and re-use) of jetty attachments at D Jetty and at the gas float are covered under Section 02 41 13 (Selective Site Demolition).

.10 Re-use of existing timber fender piles and corner dolphin piles at the D Jetty is covered under Section 31 62 19 (Timber Piling).

.11 Dredging of marine sediments is covered under Section 35 20 23 (Remedial Dredging, Barge Dewatering, and In-Water Transportation).

1.2 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

.3 Section 01 35 13.43 (Special Project Procedures for Contaminated Sites)

.4 Section 01 35 29 (Health and Safety Requirements)

.5 Section 01 35 43 (Environmental Procedures)

.6 Section 01 74 11 (Cleaning)

.7 Section 02 41 13 (Selective Site Demolition)

.8 Section 02 41 16.02 (Structure Relocation)

.9 Section 02 55 10 (Dust Control)

.10 Section 31 62 19 (Timber Piling)

.11 Section 35 20 23 (Remedial Dredging, Barge Dewatering, and In-Water Transportation)

.12 Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal)

1.3 Measurement and Payment Procedures

.1 Pre-construction Condition Inspection of adjacent structures at D Jetty and at the gas float (to be performed by the Contractor prior to the start of any structure demolition work), will not be measured individually. Pre-construction Condition Inspection of adjacent structures at D Jetty and at the gas float will be paid for at the Lump Sum Price tendered for STRUCTURE DEMOLITION: D JETTY AND GAS FLOAT – PRE-CONSTRUCTION CONDITION INSPECTION OF ADJACENT STRUCTURES. Payment shall be full compensation for all Pre-

construction Condition Inspection work at D Jetty and at the gas float, including reporting, as specified herein.

.2 Post-construction Condition Inspection of adjacent structures at D Jetty and at the gas float (to be performed by the Contractor at completion of construction), will not be measured individually. Post-construction Condition Inspection of adjacent structures at D Jetty and at the gas float will be paid for at the Lump Sum Price tendered for STRUCTURE DEMOLITION: D JETTY AND GAS FLOAT – POST-CONSTRUCTION CONDITION INSPECTION OF ADJACENT STRUCTURES. Payment shall be full compensation for all Post-construction Condition Inspection work at D Jetty and at the gas float, including reporting, as specified herein.

.3 Dismantling, extraction, cleaning, and off-site disposal (except where re-use is specified) of D Jetty's timber fender piles, regardless of the method of extraction, will not be measured individually. Dismantling, extraction, cleaning, and off-site disposal (except where re-use is specified) of D Jetty's timber fender piles will be paid for at the Lump Sum Price tendered for STRUCTURE DEMOLITION: D JETTY – TIMBER FENDER PILES. Payment shall be full compensation for dismantling, controlled extraction, and cleaning of timber piles from driven condition in seabed, transportation, and disposal off site to an accepted Disposal Facility (except where re-use is specified or required), including any environmental fees/levies and all work incidental thereto, as specified and as shown on the Drawings.

.4 Dismantling, removal, and cleaning of the D Jetty fender system components (including timber beams, rubbing poles, chains, fastening components) will not be measured individually. Dismantling, removal, and cleaning of the D Jetty fender system components will be paid for at the Lump Sum Price tendered for STRUCTURE DEMOLITION: D JETTY – MISCELLANEOUS FENDER SYSTEM COMPONENTS. Payment shall be full compensation for dismantling, removal, and cleaning of the D Jetty fender system components (including timber beams, rubbing poles, chains, fastening components) and all work incidental thereto, as specified and as shown on the Drawings.

.5 Dismantling, extraction, cleaning, and off-site disposal (except where re-use is specified) of the gas float's float locator piles, regardless of the method of extraction, will not be measured individually. Dismantling, extraction, cleaning, and off-site disposal (except where re-use is specified) of the gas float's float locator piles will be paid for at the Lump Sum Price tendered for STRUCTURE DEMOLITION: GAS FLOAT – TIMBER STRUCTURES. Payment shall be full compensation for dismantling, controlled extraction, and cleaning of timber piles from driven condition in seabed, and transportation and disposal off site to an accepted Disposal Facility (except where re-use is specified or required), including any environmental fees/levies and all work incidental thereto, as specified and as shown on the Drawings.

.6 Dismantling, removal, and cleaning of the gas float's pivot ramp will not be measured individually. Dismantling, removal, and cleaning of the gas float's pivot ramp will be paid for at the Lump Sum Price tendered for STRUCTURE DEMOLITION: GAS FLOAT – PIVOT RAMP. Payment shall be full compensation for dismantling, removal, and cleaning of the pivot ramp, including any environmental fees/levies and all work incidental thereto, as specified and as shown on the Drawings.

.7 No separate measurement or payment will be made for incidental materials (such as bolts, steel brackets, connectors, etc.) that are recovered during structure demolition. Demolition, dismantling, extraction, sorting, transport, and off-site disposal of steel bolting materials, reinforcing bars, screws, nails, tie-rods, through-bolts, threaded rod, anchor bolts, and other miscellaneous materials within and attached to the existing timber structures to be demolished will not be paid for separately, but shall be included in the relevant prices of the work covered by this section.

.8 Temporary fender protection for the existing D Jetty structure and temporary protection for the existing timber bracings underneath the D Jetty structure (to protect the bracings from abrasion or impact damage caused by the Contractor's placement of cover/fill materials), are both considered incidental to the structure demolition work, and will not be measured or paid separately.

.9 Inspection monitoring (and reporting) for D Jetty underpier slope is considered incidental to the structure demolition work, and will not be measured or paid separately.

.10 All costs associated with removal and disposal of Demolition Debris associated with structure demolition work under this section shall be included within the relevant unit rate(s) for structure demolition. No separate payment will be made for removal of Demolition Debris as Obstructions, as defined in Section 01 11 55 (General Instructions).

1.4 References

.1 Canadian Standards Association (CSA):

.1 CAN/CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

.2 National Building Code of Canada (NBCC), Part 8 – Safety Measures at Construction and Demolition Sites.

.3 WorkSafeBC, Occupational Health & Safety Regulations.

1.5 Definitions

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

1.6 Submittals

.1 In accordance with the requirements of Section 01 33 00 (Submittal Procedures), submit as part of the Construction Work Plan for review by the Departmental Representative design, drawings, and supporting data prepared by a qualified professional engineer registered or licensed in the Province of British Columbia showing the proposed method, sequencing of work and product data for protection of adjacent existing structures (temporary fender protection and temporary protection for timber bracings at D Jetty), demolition, partial demolition, dismantling, extraction, disassembly, and off-site disposal of the designated timber and steel structures (including the proposed location and details of the Disposal Facility).

.2 Within the Construction Work Plan and the Environment Protection Plan (EPP) include control measures, as required by the Environmental Management Plan (EMP), to be implemented to protect the environment during selective site demolition work.

.3 If the proposed method to extract existing driven timber piles from seabed does not utilize vibratory piling hammer (with timber pile clamp), then submit alternative equivalent method for review by the Departmental Representative. Contractor's proposed methods shall take into account the underwater noise and vibration requirements of the EMP.

.4 In accordance with the requirements of Section 01 33 00 (Submittal Procedures), submit for review by the Departmental Representative the Pre-construction Condition Inspection reports covering the following existing structures adjacent to the work:

.1 D Jetty (including deck structure, all concrete piles, all timber fender piles, all underpier bracing timbers, small boat float, and pivot gangway).

.2 Gas float (including the float, locator piles, pivot gangway, timber piled bent, fixed access gangway, and concrete pier/abutment).

The Pre-construction Condition Inspections shall be performed by, and the reports shall be sealed by, a qualified professional engineer registered or licensed in the Province of British Columbia. The inspections and reports shall include visual observations of the condition above and below water of the main structural components (e.g., piles, beams, deck slabs, and floats) and their coating systems where relevant, representative photographs identifying areas of significant deterioration or physical damage, with tables describing the damage in detail at each location (e.g., "*D Jetty, pile bent XX row YY, 200mm wide by 100mm high by 25mm deep concrete spall, no rebar exposed*") and supporting sketch drawings. Underwater and above-water inspections will be required to satisfy this requirement. Once accepted by the Departmental Representative as an accurate representation of existing conditions, these Pre-construction Condition Inspection

reports will be used as a baseline reference in the event that any damage to existing adjacent structures within the Work Site occurs during the work.

.5 In accordance with the requirements of Section 01 33 00 (Submittal Procedures), submit for review by the Departmental Representative the Post-construction Condition Inspection reports covering the existing structures adjacent to the work (same structures and scope as described in Clause 1.6.4).

.6 The Contractor shall submit to the Departmental Representative copies of all manifests, weight tickets, and other documentation to demonstrate and track the final disposition of the structure Demolition Debris at a Disposal Facility. The documentation shall track the Demolition Debris from the point of leaving the DND Work Site to final disposal.

1.7 Site Conditions

.1 Review environmental site information and the EMP and take precautions to protect environment.

.2 For geotechnical investigation data reports, structure condition inspection reports (including dive video) and other background data, refer to the Data Reports listed in the Specification Index. Review all Data Reports for information regarding composition and condition of items to be demolished, and geotechnical conditions.

.3 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify the Departmental Representative immediately. Do not proceed until written instructions have been received from the Departmental Representative.

.4 Timber piles may contain “Timberfume” chloropicrin fumigant vials. Dispose of such piles in accordance with this section of the Specification.

.5 The Contractor shall inspect the Work Site to thoroughly familiarize himself with site conditions before starting structure demolition work.

.6 Notify the Departmental Representative at a minimum twenty-four (24) hours before disrupting access or services at D Jetty or at the gas float.

2. PART 2 – PRODUCTS

2.1 Equipment

.1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.

.2 Demonstrate that tools and machinery are being used in a manner that allows for salvage of materials in best condition possible.

3. PART 3 – EXECUTION

3.1 Preparation and Protection

.1 Within ten (10) working days of Contract Award, inspect site with the Departmental Representative to verify extent and location of items designated for removal, disposal, and salvage and items to remain or to be re-used in the work.

.2 Do work in accordance with Section 01 35 29 (Health and Safety Requirements).

.3 Perform (and report on) Pre-construction Condition Inspection of existing adjacent structures in advance of any structural demolition work, as described elsewhere in this section.

.4 Protection:

.1 Support affected structures and prevent movement, settlement, or damage to adjacent structures, utilities, and portions of structures to remain in place. Provide bracing, shoring, and underpinning as required.

.2 If safety of structure being disassembled or demolished (or adjacent structures and services) appears to be endangered, take preventative measures, cease operations, and immediately notify the Departmental Representative.

.3 Prevent debris from blocking surface drainage system, mechanical, and electrical systems.

.4 Keep noise, dust, and inconvenience to occupants and users to minimum and in accordance with Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), Section 01 35 43 (Environmental Procedures), Section 02 55 10 (Dust Control), the EMP, and the (EPP.

.5 Carry out structure demolition in conformance with Township of Esquimalt, City of Colwood, and View Royal noise by-laws as stipulated in Section 01 35 43 (Environmental Procedures).

.6 Install and maintain temporary structural safety barricades and Work Site procedures throughout the demolition work, in accordance with WorkSafeBC requirements.

.7 Provide temporary dust screens, covers, railings, supports, and other protection as required.

.5 Locate and protect utility lines. Do not disrupt active or energized utilities designated to remain undisturbed.

.6 Disconnect electrical service lines entering areas designated for demolition as shown on the Drawings.

.7 Post warning signs on electrical lines and equipment, which must remain energized to serve other equipment and services during period of demolition.

.8 During all in-water and above-water demolition and pile extraction work, environmental protection control measures shall comply with the requirements of Section 01 35 43 (Environmental Procedures), Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), the EMP, and the EPP.

.9 Protect existing structures from accidental damage during dredging operations, as stipulated in Section 35 20 23 (Remedial Dredging, Barge Dewatering, and In-Water Transportation).

.10 Provide temporary fender protection along the waterside face (north berth face only) of D Jetty structure to protect the existing concrete deck structure and concrete piles from abrasion or impact damage caused by the Contractor's floating construction equipment, tugboats, or by other construction activities. The temporary fender protection shall comprise timber or rubber fender units, or combination thereof, to the Departmental Representative's satisfaction, and shall remain in place from commencement of structure demolition until reinstatement of the timber fender piles, corner dolphin piles, and floating fender logs in that area of the work. The Contractor is responsible for protecting existing structures from damage throughout the work.

.11 Pile extraction work shall be undertaken in a manner to protect the existing underpier armoured slope at D Jetty (and its constituent materials) from damage or sloughing during the work. The Contractor shall visually monitor and inspect the armoured slope under the east portion of D Jetty (as shown on the Drawings) for movement, sloughing, or slope deterioration, at weekly intervals during pile extraction work. Conduct each monitoring inspection jointly with the Departmental Representative (or designate). Provide brief written report to the Departmental Representative for each visual monitoring inspection, within twenty-four (24) hours of completion of the inspection.

.12 Provide temporary protection at the existing timber bracings underneath D Jetty structure to protect the bracings from abrasion or impact damage caused by the Contractor's placement of cover/fill materials. The temporary protection shall comprise timber shielding or diverters or other similar methodology, to the Departmental Representative's satisfaction, and shall remain in place throughout the period when cover/fill material is being placed in that area of the work. The Contractor is responsible for protecting existing structures from damage throughout the work.

.13 Do not allow buoyant items that have been demolished or detached from their original position (i.e., floating debris) to float beyond the Work Site. Do not allow such floating debris to cause any hindrance or obstacle to marine traffic and DND operations. Identify and collect such floating debris on a daily basis, and dispose in accordance with the Specifications.

3.2 Demolition and Salvage

.1 Demolish and remove existing structures, portions of existing structures, and attachments as shown on the Drawings.

.2 Except where an equivalent alternative method has been submitted and accepted by the Departmental Representative, use vibratory piling hammer (with timber pile clamp) to extract existing driven timber piles from the seabed.

.3 Extract, dismantle, and store existing timber piles ready for off-site disposal, as shown on the Drawings.

.4 Use all practicable means to extract timber piles intact. Extract timber piles carefully, to maximize the number and length of intact piles that are removed from the site, and to minimize pile breakage and/or debris on the seabed caused by the pile extraction process.

.5 In the event that pile breakage occurs during extraction of timber piles from the seabed, make all reasonable efforts to extract the broken portion of the pile(s). In the event that extraction of broken portion is impractical (e.g., the remnant is below seabed), then survey the pile location and report such occurrence to the Departmental Representative in writing, and await direction of the Departmental Representative.

.6 Demolish portions of existing structures only to the extent shown on the Drawings.

.7 Prevent debris, dust, and any sediment laden waters from entering any drainage system, water course, or marine environment in line with DND Formation Safety and Environment (FSE) directives, the EMP, and the EPP.

.8 Ensure that structure demolition work does not adversely affect adjacent watercourses, groundwater, and wildlife, or contribute to excess air and noise pollution.

.9 Extracted timber piles must be inspected to look for the presence of "Timberfume" chloropicrin fumigant vials. Piles containing the vials shall be decommissioned in accordance with applicable provincial and federal legislation and as per the disposal methods indicated in the material safety data sheets (MSDS), and shall not be re-used in the work. Precautions shall be taken to ensure that the contents of the vials are not inadvertently released to the marine environment.

.10 When cutting creosote timbers near or over water, ensure that all cuttings are contained and collected from the water, and ensure that any sheen or residue resulting from cutting creosote timbers is contained and cleaned up.

.11 Do not dispose of waste or volatile materials including, but not limited to, mineral spirits, oil, petroleum-based lubricants, or toxic cleaning solutions into watercourses or storm or sanitary sewers.

.12 During timber demolition work, recover and dispose of steel bolting materials, screws, nails, tie-rods, through-bolts, threaded rod, anchor bolts, and other miscellaneous materials within the affected timber structures.

.13 Blasting or other explosive methods shall not be used to assist in demolition of structures.

.14 Refer to the Drawings and Specifications for attachments and utilities to be disposed, or salvaged for re-use. Remove attachments and utilities to be salvaged, store as directed by the Departmental Representative, and reinstall under appropriate section of the Specifications where re-use is indicated.

3.3 Disassembly and Demolition Procedures

.1 Except where salvage and re-use in the work is specified, the Contractor becomes the owner of, and is responsible for, any soil, sediment, debris, waste, jetty components designated for demolition, or other material once it is removed, dredged, or excavated to be loaded onto a vehicle, barge, or other vessel for transport to a Contractor Off-Site Offload Facility, Disposal Facility, Treatment Facility, or Hazardous Waste Management Facility.

.2 Throughout course of disassembly and demolition, pay close attention to connections and material assemblies. Employ workmanship procedures, which minimize damage to materials and equipment.

.3 Ensure workers and subcontractors are trained to carry out work in accordance with appropriate demolition techniques.

.4 The Contractor's Superintendent for structure demolition work must have previous demolition experience, and must be present on site throughout structure demolition work.

.5 Carry out demolition in accordance with CAN/CSA S350 and other applicable safety standards.

.6 Workers must utilize adequate fall protection as required by WorkSafeBC.

.7 Ensure that the sequence of disassembly and demolition is such that structural integrity is maintained and that collapse of the structure is prevented. Ensure that all workers are aware of critical supports, both existing and temporary.

.8 Remove and store materials to be salvaged, in manner to prevent damage.

.9 Store and protect in accordance with requirements for maximum preservation of material.

.10 Handle salvaged materials as new materials.

.11 Where existing materials are to be re-used in the work, use special care in removal, handling, storage, and reinstallation to ensure proper function in completed work.

.12 Trim faces and edges of partially demolished structural elements to tolerances shown on the Drawings.

3.4 Processing

.1 Designate location for processing of materials, which eliminates double handling (except where specified otherwise) and provides adequate space to maintain efficient material flow.

.2 De-nail, strip, and separate materials to ensure best possible condition of salvaged materials.

.3 Keep processing area clean and free of excess debris.

.4 Supply separate, marked disposal bins for categories of waste material.

.5 Separate processed materials into organized piles for stockpiling. Provide collection area for materials processed designated for alternate disposal. Pile miscellaneous materials on pallets to facilitate transport off site.

3.5 Cleaning of Extracted Timber Piles

.1 After extraction of timber piles, clean off all sediment and other objects that are attached to the surface of the piles.

.1 Handle, store, and transport the extracted timber piles in the same manner as contaminated sediment prior to cleaning the timber piles, except where otherwise allowed by the EMP.

.2 Prevent the removed sediment or other removed objects from entering the marine environment (unless the cleaning process is contained within an adequate silt curtain system and is conducted before start of remediation dredging in that area), and comply with water quality criteria of the EMP during extraction, transport, and cleaning of the extracted timber piles.

.3 Where cleaning of timber piles is conducted on a barge or at the Contractor Off-Site Offload Facility, all sediment and other objects that were cleaned off the surface of the timber piles shall be managed for disposal in accordance with Section 35 20 23 (Remedial Dredging, Barge Dewatering, and In-Water Transportation) and Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal).

.4 Prevent removed sediment or other removed objects from re-contaminating areas where dredging or material placement is in process or has been completed.

3.6 Stockpiling

.1 Structure demolition materials and debris may be stockpiled within the Work Site at the sole discretion of the Departmental Representative, and then only at location(s) reviewed and accepted by the Departmental Representative.

.2 Label stockpiles, indicating material type and quantity.

.3 Designate appropriate security resources/measures to prevent vandalism, damage, and theft.

.4 For salvaged attachments that are to be re-used in the work, locate stockpiled materials convenient for use in new construction. Eliminate double-handling wherever possible.

.5 Stockpile materials that are designated for alternate disposal in a location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

.6 Stockpile materials shall be contained and filtered to eliminate particle transfer into the marine environment.

3.7 Removal from Site and Disposal

.1 Remove from the DND Work Site all Demolition Debris that is not required or specified for re-use in the work.

.2 Except where re-use of materials in the work is required or specified, transport all structure Demolition Debris off site only by waterborne transport. Do not use trucks to transport Demolition Debris from D Jetty or from the gas float.

.3 Dispose of removed materials, including creosoted or treated timber components (including end pieces, wood scraps, and sawdust), to appropriate licensed Disposal Facility in Canada or the U.S. except where specified otherwise, in accordance with provincial or state regulations and/or authority having jurisdiction. Provide the location of the Disposal Facility as part of the EPP for acceptance by the Departmental Representative.

.4 Transport material designated for disposal by approved haulers to receiving organizations in accordance with regulations. Do not deviate from haulers and receiving organizations listed in the Construction Work Plan without prior written authorization from the Departmental Representative.

.5 Off-load, process, treat, and dispose of structure Demolition Debris to receiving organizations in accordance with regulations. Do not deviate from Contractor Off-Site Off-load, Processing, Treatment and Disposal Facilities that are included in the Construction Work Plan without prior written authorization from the Departmental Representative.

3.8 Cleaning and Restoration

.1 Keep site clean and organized throughout structure demolition work.

.2 For items that are required by the Specification to be cleaned (during removal, relocation, or reinstallation), use cleaning solutions and procedures that are effective and are not harmful to health, are not injurious to plants, and do not endanger wildlife or marine environment.

.3 Repair damage to adjacent structures and utilities caused by disassembly or demolition of structures in the work, as directed by the Departmental Representative.

.4 Conduct Work Site restoration activities in accordance with Section 01 74 11 (Cleaning).

.5 Upon completion of project, remove debris, trim surfaces, and leave Work Site clean.

.6 Upon completion of project, reinstate gas float abutment pavement area affected by work to the condition that existed prior to beginning of work, and match the condition of adjacent, undisturbed areas.

.7 Perform (and report on) Post-construction Condition Inspection of existing adjacent structures at completion of construction, as described elsewhere in this section.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers temporary relocation, storage, cleaning, and reinstallation of miscellaneous structures (i.e., floating camel/tire fenders, weights, and chains at D Jetty North Zone) to facilitate marine dredging works as shown on the Drawings and as described in the Specification. The work includes temporary relocation (including lifting and re-deploying floating camel/tire fender anchor weights), storage, cleaning, reinstallation, and reinstatement of operational functionality.

.2 This section also covers temporary relocation, storage, cleaning, and reinstallation of the gas float, including the float locator piles and pivot ramp, to facilitate marine dredging works as shown on the Drawings and as described in the Specification. The work includes temporary relocation, storage, cleaning, reinstallation, and reinstatement of operational functionality. The work also includes disconnection of affected electrical services at the gas float. Subsequent reconnection of affected electrical services will be performed by DND personnel.

.3 Controlled extraction from driven condition in seabed and disposal (where not designated for re-use in the work) of timber fender piles at D Jetty, and of timber locator piles at the gas float, are covered under Section 02 41 16.01 (Structure Demolition).

.4 Storage and subsequent reinstatement of timber fender piles at D Jetty, and of timber locator piles at the gas float, designated for re-use in the work are covered under Section 31 62 19 (Timber Piling).

.5 Demolition, salvage, and disposal off site of miscellaneous items designated to be disposed off site are covered under Section 02 41 13 (Selective Site Demolition).

1.2 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

.3 Section 01 35 13.43 (Special Project Procedures for Contaminated Sites)

.4 Section 01 35 29 (Health and Safety Requirements)

.5 Section 01 35 43 (Environmental Procedures)

.6 Section 01 74 11 (Cleaning)

.7 Section 02 41 13 (Selective Site Demolition)

.8 Section 02 41 16.01 (Structure Demolition)

.9 Section 02 55 10 (Dust Control)

.10 Section 26 05 00 (Common Work Results for Electrical)

.11 Section 31 62 19 (Timber Piling)

1.3 Measurement and Payment Procedures

.1 Temporary relocation, storage, cleaning, and reinstallation of D Jetty miscellaneous structures will not be measured individually. Temporary relocation, storage, cleaning, and reinstallation of the D Jetty miscellaneous structures as specified will be paid for at the Lump Sum Prices tendered for each discrete relocation activity as listed below:

STRUCTURE RELOCATION: D JETTY – RELOCATE AND STORE MISCELLANEOUS STRUCTURES

STRUCTURE RELOCATION: D JETTY – REINSTALL MISCELLANEOUS STRUCTURES

Payment shall be full compensation for temporary relocation, storage, cleaning, and reinstallation of the affected structures at D Jetty, all as specified.

.2 Temporary relocation, storage, cleaning, and reinstallation of the gas float, including the float locator piles and pivot ramp will not be measured individually. Temporary relocation, storage, cleaning, and reinstallation of the gas float, including the float locator piles and pivot ramp as specified will be paid for at the Lump Sum Prices tendered for each discrete relocation activity as listed below:

.1 STRUCTURE RELOCATION: GAS FLOAT – RELOCATE AND STORE GAS FLOAT, LOCATOR PILES AND PIVOT RAMP.

.2 STRUCTURE RELOCATION: GAS FLOAT – REINSTALL GAS FLOAT, LOCATOR PILES AND PIVOT RAMP.

Payment shall be full compensation for temporary relocation, storage, cleaning, and reinstallation of the affected structures, including disconnection of affected electrical services at the gas float, all as specified.

.3 Payment under Clause 1.3.2 shall also cover the protection and safeguarding of the existing gas float (including its locator piles and pivot ramp) from environmental effects (wind and wave attack) throughout the period during which the gas float is removed from its existing position, as described in this section of the Specifications.

1.4 References

.1 CAN/CSA-S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

.2 Occupational Health and Safety Regulations, WorkSafeBC.

.3 National Building Code of Canada (NBCC), Part 8 – Safety Measures at Construction and Demolition Sites.

1.5 Definitions

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

1.6 Submittals

.1 In accordance with the requirements of Section 01 33 00 (Submittal Procedures), submit as part of the Construction Work Plan for review by the Departmental Representative a description of the method and procedures for structure relocation. Structure relocation activities shall not begin until: 1) the Construction Work Plan has been reviewed and accepted by the Departmental Representative; and 2) other Notifications and review have been completed as necessitated by the permits or other requirements of the Contract. At a minimum, the method and procedures for relocation of designated structures shall contain the following information:

.1 Order and sequence in which the structure relocation work is to be performed, including a description of equipment to be used and methods of operation.

.2 Identify timing and sequencing of structure relocation activities at D Jetty and at the gas float, as they relate to other elements of the work, and integration with the overall construction schedule. Note that DND operations take precedence over work in this Contract.

.3 Proposed method of protection and safeguarding of the existing gas float (including its locator piles and pivot ramp) from environmental effects (wind and wave attack) throughout the period starting when the gas float is removed from its existing position and continuing until it is reinstalled as described on the Drawings.

.4 Methods, procedures, and equipment to be utilized for structure relocation work.

.5 Methods and procedures for providing Environmental Protection throughout the structure relocation work.

.2 Within the Construction Work Plan and the Environment Protection Plan (EPP) include control measures, as required by the Environmental Management Plan (EMP), to be implemented to protect the environment during structure relocation work.

1.7 Site Conditions

.1 Inspect the Work Site thoroughly and verify site conditions before starting structure relocation work.

.2 Review environmental site information and the EMP and take precautions to protect environment.

.3 For geotechnical investigation data reports, structure condition inspection reports (including dive video), and other background data, refer to the Data Reports listed in Section 00 01 10 (Specification Index). Review all Data Reports and Reference Drawings for information regarding composition and condition of structures to be relocated, and geotechnical conditions.

.4 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify the Departmental Representative immediately. Do not proceed until written instructions have been received from the Departmental Representative.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION

3.1 Preparation and Protection

.1 Notify the Departmental Representative a minimum of five (5) working days before start of structure relocation activities. No structure relocation work shall commence until the Departmental Representative has reviewed and accepted the Contractor's Construction Work Plan. Schedule work in conformance with the sequencing requirements of the Specifications.

.2 Inspect the site with the Departmental Representative to verify the extent and location of structures designated for relocation.

.3 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.

.4 Demonstrate that tools and machinery are being used in a manner that minimizes potential damage to structures that are to be relocated.

.5 Support affected structures and prevent movement, settlement, or damage to adjacent structures, utilities, and portions of structures to remain in place. Provide bracing, shoring, and underpinning as required.

.6 If the safety of a structure being relocated (or adjacent structures and services) appears to be endangered, take preventative measures, cease operations, and immediately notify the Departmental Representative.

.7 Prevent Demolition Debris from blocking surface drainage, mechanical, and electrical systems.

.8 Keep noise, dust, and inconvenience to occupants and users to a minimum, and in accordance with Section 01 35 13.43 (Special Procedures for Contaminated Sites), Section 01 35 43 (Environmental Procedures), Section 02 55 10 (Dust Control), the EMP, and the EPP.

.9 Install and maintain temporary structural safety barricades throughout the structure relocation work, in accordance with WorkSafeBC requirements.

.10 Provide temporary dust screens, covers, railings, supports, and other protection as required.

.11 Locate and protect utility lines. Do not disrupt active or energized utilities designated to remain undisturbed.

.12 The Contractor shall be responsible for coordination, through the Departmental Representative, with the appropriate parties regarding identification of active utility lines prior to the start of structure relocation work. The Contractor shall be responsible for disconnection of all active utility lines as necessary for the work.

.13 Do not damage any active or disconnected utility line during the work.

.14 Post warning signs on electrical lines and equipment that must remain energized to serve other dock equipment and services during period of structure relocation.

.15 Protect and safeguard the existing gas float (including its locator piles, pivot ramp, and approach gangway) from environmental effects (wind and wave attack) throughout the period starting when the gas float is removed from its existing position and continuing until it is reinstalled as described on the Drawings.

.16 During all in-water dismantling work, environmental protection control measures shall comply with the requirements of Section 01 35 43 (Environmental Procedures), Section 01 35 13.43 (Special Procedures for Contaminated Sites), the EMP, and the EPP.

.17 Do not allow buoyant items that have been disconnected or detached from their original position (i.e., floating debris) to float beyond the Work Site. Do not allow such floating debris to cause any hindrance or obstacle to marine traffic and DND operations. Identify and collect such floating debris on a daily basis, and dispose in accordance with the Specifications.

3.2 Structure Disconnection, Relocation and Storage

.1 Disconnect and relocate the D Jetty miscellaneous structures, and the gas float (including its locator piles and pivot ramp), all in accordance with the methods and procedures described in the Construction Work Plan.

.2 Prior to disconnecting structures identified for temporary relocation, survey the affected structures and prepare a dimensioned scale drawing for each structure to

show location, general arrangement with key dimensions, locator piles (type, diameter, length, seabed embedment, positions), safety ladders, lights, utilities, and miscellaneous attachments. Identify and mark all existing service connections and utility hook-ups. Submit the aforementioned drawing to the Departmental Representative for review (and as a part of the record of pre-existing conditions). Do not disconnect structures for relocation until the aforementioned drawing has been submitted to and accepted as complete by the Departmental Representative.

.3 Relocate all structures identified for relocation and attachments, including locator piles, floats, floating camel/tire fenders, weights and chains, marine fenders, safety ladders, lights, utilities, and miscellaneous attachments in a manner to prevent damage, at the locations designated by the Departmental Representative.

.4 Store and protect all relocated or stored structures and components so as to ensure their preservation and their structural integrity.

.5 Do not disturb or damage items designated to remain in place.

3.3 Structure Reinstallation and Sequencing of Work

.1 Reinstall structures to the designated location as shown on the Drawings, and to pre-existing operational condition.

.2 Reinstall the D Jetty miscellaneous structures, to the following sequence:

.1 Temporarily secure the miscellaneous structures and associated components at a designated location.

.2 Reinstall the miscellaneous structures per existing details, and as shown on the Drawings.

.3 Reinstall the gas float (including its locator piles and pivot ramp), to the following sequence:

.1 Temporarily secure the gas float in its designated location.

.2 Reinstall the locator piles per existing details, and as shown on the Drawings, all in accordance with Section 31 62 19 (Timber Piling).

.3 Reinstall and reconnect the pivot ramp, and check operation of pivot ramp over full tidal range.

.4 Electrical service will be reinstalled by DND personnel.

.4 The Contractor shall reinstall all relocated structures so that they maintain their original use and function.

.5 The Contractor shall be responsible for any damage that occurs to the structures designated for relocation throughout the disconnection, relocation, storage, and reinstallation work.

.6 The Contractor and the Departmental Representative shall jointly inspect all relocated structures following reinstallation and reconnection of utilities (by DND personnel), to confirm adherence to the requirements of the Specifications.

3.4 Cleaning and Restoration

.1 Keep Work Site clean and organized throughout structure relocation work.

.2 For items that are required by the Specification to be cleaned (during removal, relocation or reinstallation), use cleaning solutions and procedures that are effective and are not harmful to health, are not injurious to plants, and do not endanger wildlife or marine environment.

.3 Repair damage to adjacent structures and utilities caused by disconnection, relocation, or reinstallation of structures in the work, as directed by the Departmental Representative.

.4 Conduct Work Site restoration activities in accordance with Section 01 74 11 (Cleaning).

.5 Upon completion of the work, remove debris and leave Work Site clean.

3.5 Acceptance of the Work

.1 Notify the Departmental Representative following completion of the structure relocation work.

.2 The Departmental Representative will inspect the work and provide acceptance, or require the Contractor to perform additional work in order to complete the structure relocation work as described in the Contract documents.

.3 Do not demobilize from the project site prior to Departmental Representative acceptance of the work.

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 Section 02 41 13 (Selective Site Demolition)

.2 Section 02 41 16.01 (Structure Demolition)

.3 Section 02 41 16.02 (Structure Relocation)

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 – Not Used

1.5 Definitions – Not Used

1.6 Submittals – Not Used

2. PART 2 – PRODUCTS

2.1 Materials

.1 Water: to the Departmental Representative's acceptance.

.2 Dust Screens: to the Departmental Representative's acceptance.

3. PART 3 – EXECUTION

3.1 Application

.1 Ensure that dust arising from all Contractor operations, such as barge or truck transportation, material stockpiling, and demolition work, is controlled by water application and use of dust screens.

.2 Ensure that dust blown from the work does not affect adjacent facilities.

.3 Apply water as required for dust control, and when directed by the 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 storm drains or run directly or indirectly into the marine environment.

.6 Provide temporary dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of work, and public.

.7 Maintain, relocate as necessary, and remove dust screens at completion of those portions of the work that may generate airborne dust.

.8 Secure and cover material in open trucks hauling excavated material, and re-use the covers.

.9 If the Contractor's dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, stop work. Discuss, with the Departmental Representative, 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.

.10 Take extra precautions, when necessary, to ensure that dust control measures are adequate during hot and dry weather, if there are strong winds, or if sediment is stockpiled overnight.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers the preservative treatment by pressure impregnation of new timber piles, and field preservative treatment of new and re-used timber components.

1.2 Related Sections

.1 Section 01 33 00 (Submittal Procedures)

.2 Section 31 62 19 (Timber Piling)

.3 Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal)

1.3 Measurement and Payment Procedures

.1 Wood treatment will not be measured separately, but considered incidental to the work. All costs in connection with wood treatment, including quality control inspection and testing, shall be included in the prices tendered for the associated items of work.

.2 Timber piles will be measured to Section 31 62 19 (Timber Piling), and payment shall include all costs in connection with timber piles as specified in that section.

1.4 References

.1 Canadian Standards Association (CSA):

.1 CAN/CSA-O80 Series-08, Standard for Wood Preservation.

.2 Wood Preservation Canada (WPC): "Best Management Practices for the use of Treated Wood in Aquatic and Wetland Environments (2012)".

.3 Canadian Wood Preservation Certification Authority (CWPCA).

1.5 Definitions – Not Used

1.6 Submittals

.1 Submit name and credentials of testing firm to be used for quality control testing of treated wood products, in accordance with the requirements of Section 01 33 00 (Submittal Procedures), to the Departmental Representative prior to commencing quality control testing. Provide evidence that the Contractor's testing firm has certification from CWPCA.

.2 Submit certificates, in accordance with the requirements of Section 01 33 00 (Submittal Procedures), to the Departmental Representative at time of delivery of treated wood products to the Work Site. For products treated with preservative by pressure impregnation, submit the following information certified by authorized signing officer of treatment plant:

.1 Information specified in CAN/CSA-O80 Series applicable to specified treatment.

.2 Moisture content after drying following treatment with waterborne preservative.

.3 Confirmation that the products meet the specified Use Category.

.3 Provide certification that the pressure treated timbers comply with the "Best Management Practices for the Use of Treated Wood in Aquatic and Wetland Environments" published by WPC.

1.7 Quality Control

.1 Quality control inspection and testing of pressure-treated timbers are to be carried out by a qualified testing firm proposed by the Contractor and accepted by the Departmental Representative. Plant inspection of products treated with preservative by pressure impregnation shall be carried out by the Contractor's designated testing firm to CSA O80 Series requirements. The Contractor is responsible for all costs associated with such inspection and testing.

.2 The Departmental Representative may elect to have additional tests, including core sampling, performed by the Departmental Representative's testing firm as a quality assurance measure. Data from such tests will be made available to the Contractor for information only. The Departmental Representative will pay for all costs associated with these additional tests. Inspection and/or testing by the Departmental Representative for quality assurance purposes will not augment or replace the requirement for the Contractor's quality control nor relieve him of his contractual responsibility. Notwithstanding any aforementioned quality assurance inspection and/or testing, the Departmental Representative reserves the right to reject materials on site.

2. PART 2 – PRODUCTS

2.1 Materials

.1 Copper napthenate: To contain 2% minimum copper, per CAN/CSA-O80 Series.

.2 Preservative for timber piles: Creosote to CAN/CSA-O80 Series.

3. PART 3 – EXECUTION

3.1 Application: Preservative

.1 Treat all new timber piles in accordance with the "Best Management Practices for the use of Treated Wood in Aquatic and Wetland Environments" published by WPC.

.2 Treat new timber piles to CAN/CSA-O80 Series for Use Category UC5A (continuous salt water exposure) using creosote preservative by the full cell process to obtain minimum net retention of 290 kilograms per cubic metre (kg/m^3) of wood. Creosote treatment of timber piles to be applied off site before delivery to site.

3.2 Application: Field Treatment

.1 Comply with CAN/CSA-O80 Series requirements.

.2 Surfaces of re-used timber components that are exposed by cutting, trimming, or boring, cracks, and holes shall be treated promptly with three (3) separate coats of copper napthenate (2% minimum copper). Allow enough time between coats for full absorption. Alternatively, creosote field-treatment of creosoted timber piles in accordance with CAN/CSA-O80 Series will be allowed.

.3 Take all reasonable precautions to minimize the amount of field preservative treatment from escaping into the marine environment.

3.3 Waste Management and Disposal

.1 Place materials defined as hazardous or toxic in designated containers.

.2 Dispose of removed materials at Disposal Facility in accordance with Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal), and in accordance with federal, provincial, state (as applicable), and local jurisdiction regulations.

.3 Dispose of creosoted or preservative-treated timber components, end pieces, wood scraps, and sawdust in accordance with federal, provincial, state, and local jurisdiction regulations.

.4 Dispose of unused wood preservative at official hazardous material collections site that is permitted to accept such materials.

.5 Do not dispose of unused preservative material into sewer system, streams, or lakes; onto ground; or in other locations where they will pose health or environmental hazards.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers the modification and re-use of salvaged timber support beams (including the timber waler beams, timber chock beams, timber capping beams, and any other timber components included in the D Jetty fender system), and supply of replacement timber support beams as required in the work. Re-use of salvaged timber components as indicated on the Drawings is a project requirement, except as indicated otherwise.

.2 This section also covers the modification and re-use of salvaged timber components at the gas float, and supply of replacement timber components as required in the work. Re-use of salvaged timber components as indicated on the Drawings is a project requirement, except as indicated otherwise.

.3 For re-use of timber piles, if required in the work, refer to Section 31 62 19 (Timber Piling).

1.2 Related Sections

.1 Section 01 33 00 (Submittal Procedures)

.2 Section 02 55 10 (Dust Control)

.3 Section 06 05 73 (Wood Treatment)

.4 Section 31 62 19 (Timber Piling)

1.3 Measurement and Payment Procedures

.1 Reinstallation of timber fender components (waler beams, cap beams, and chock beams) at D Jetty will not be measured individually. Payment for reinstallation of timber fender components will be made at the Lump Sum Price tendered for TIMBER: D JETTY – REINSTALL TIMBER FENDER COMPONENTS. Payment shall be full compensation for all work in connection with reinstallation of existing timber fender components at D Jetty (other than timber piles) as described in this section and on the Drawings.

.2 Where existing timber fender components (waler beams, cap beams, and chock beams) at D Jetty are identified by the Contractor and are accepted by the Departmental Representative as being unsuitable for re-use, measure the supply of new timber fender components in net length actually installed (in metres), as required for the work. Payment for TIMBER: D JETTY – SUPPLY TIMBER FENDER COMPONENTS shall be full compensation for all work in connection with supply of new timber fender components, as described in this section and shall include for any member length wastage associated with installation. Nominal net lengths of new timber fender components at D Jetty (i.e., waler

beams, cap beams, and chocks) are included in the Unit Price Table for Tender pricing purposes. Payment for installation of these timber fender components is covered under Clause 1.3.1 of this section.

.3 Reinstallation of timber components (pile bracings) at the gas float will not be measured individually. Payment for reinstallation of timber components at the gas float will be made at the Lump Sum Price tendered for TIMBER: GAS FLOAT – REINSTALL TIMBER COMPONENTS. Payment shall be full compensation for all work in connection with modification and re-use of timber components at the gas float (other than timber piles) as described in this section and on the Drawings.

.4 Where existing timber components (pile bracings) at the gas float are identified by the Contractor and are accepted by the Departmental Representative as being unsuitable for re-use, measure the supply of new timber components in net length actually installed (in metres), as required for the work. Payment for TIMBER: GAS FLOAT – SUPPLY TIMBER COMPONENTS shall be full compensation for all work in connection with supply of new timber components, as described in this section, and shall include for any member length wastage associated with installation. Nominal net length of new timber components at the gas float is included in the Unit Price Table for Tender pricing purposes. Payment for installation of these timber components is covered under Clause 1.3.3 of this section.

.5 Metal fabrications (including through-bolts, straps, and anchors) for timber components are considered as incidental to the work, and will not be measured or paid separately.

.6 Re-use of timber piles (if required) will be measured to Section 31 62 19 (Timber Piling), and payment shall include all costs in connection with timber piles as specified in that section.

.7 Preservative treatment is considered as incidental to supply and installation of new timber components, and will not be measured or paid separately.

1.4 References

.1 Canadian Standards Association (CSA):

.1 CAN/CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.2 CAN/CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.3 CAN/CSA-O86, Engineering Design in Wood.

.4 CAN/CSA-O80 Series-08, Standard for Wood Preservation.

.5 CAN/CSA-O121, Douglas Fir Plywood.

.6 CAN/CSA-O141, Softwood Lumber.

.2 American Society for Testing and Materials (ASTM):

.1 ASTM A 307, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.3 ASTM A153/Al53M, Standard Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware.

.3 National Lumber Grades Authority (NLGA):

.1 Standard Grading Rules for Canadian Lumber.

.4 Wood Preservation Canada: "Best Management Practices for the Use of Treated Wood in Aquatic and Wetland Environments (2012)".

.5 Canadian Wood Council (CWC), Wood Design Manual (2005).

1.5 Definitions – Not Used

1.6 Submittals – Not Used

1.7 Quality Control

.1 Timber shall be identified by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood shall be identified by grade mark in accordance with applicable CSA standards.

.3 The Departmental Representative may inspect materials and products at its discretion at all stages of their manufacture, transportation, and installation. Satisfactory inspection at any stage does not preclude future rejection. Acceptance will not be made until the materials and products are satisfactorily installed in the completed structure to the project Specifications.

1.8 Waste Management and Disposal

.1 Separate waste materials to the maximum extent economically possible.

.2 Do not burn scrap timber at the project site.

.3 Fold up metal banding, flatten, and place in designated area for disposal.

2. PART 2 – PRODUCTS

2.1 Framing and Structural Materials

.1 Timber: (if required for this project)

.1 Coastal Douglas Fir No. 1 structural grade or better.

.2 In accordance with CAN/CSA-O86 and CAN/CSA-O141.

.3 Timber to bear a grading stamp of an agency certified by Canadian Lumber Standards Administration Branch, and be in accordance with NLGA Standard Grading Rules for Canadian Lumber.

.4 The Departmental Representative may inspect materials and products at its discretion at all stages of their manufacture, transportation, and assembly. Satisfactory inspection at any stage does not preclude future rejection if the materials or products are subsequently found to lack uniformity or fail to conform to the requirements specified. Acceptance will not be made until the materials or products are satisfactorily installed in the completed structure as specified.

.5 Timber to be seasoned with a maximum moisture content of 20%.

.6 Timbers to be rough sizes unless noted otherwise.

.7 Timbers shall not contain centre cores.

.2 Plywood: (not required for this project)

.1 DFP (Douglas Fir Plywood) Exterior Grade.

.2 In accordance with CAN/CSA-O121.

.3 Plank decking: (not required for this project)

.1 Coastal Douglas Fir No. 1 76 millimetre (mm) x 305 mm.

.2 In accordance with CAN/CSA-O86 and CAN/CSA-O141.

.3 In accordance with NLGA Standard Grading Rules for Canadian Lumber.

.4 Decking to be wane free.

.5 Timber to be seasoned with a maximum moisture content of 20%.

.6 Decking lengths: 1.8 metres (m) to 6.0 m or longer with a minimum of 90% of planks exceeding 3.0 m. For spans shorter than 3.0 m, use decking of same length as span.

2.2 Accessories

.1 Nails, spikes, and staples: to CAN/CSA-B111. Nails shall be Ardox nails.

.2 Bolts: 19 mm diameter unless indicated otherwise, complete with nuts and washers.

.3 Drift pins: to ASTM A307 or CAN/CSA G40.20/G40.21.

.4 Proprietary fasteners: lag bolts, screws, and other fasteners, recommended for purpose by manufacturer.

.5 Asbestos-containing Materials Prohibition: Any material containing any degree of asbestos is banned from use in any and all sites, designs, and projects.

2.3 Fastener Finishes

.1 Hot dip galvanizing: to ASTM A153/A153M.

2.4 Wood Preservative

.1 Wood treatment: to Section 06 05 73 (Wood Treatment) and to Wood Preservation Canada Best Management Practices for the Use of Treated Wood in Aquatic and Wetland Environments.

3. PART 3 – EXECUTION

3.1 Preparation

.1 Timbers to be treated shall be cut to final length prior to treatment. Wherever possible, bolt holes and drift pin holes shall be drilled prior to treatment. Treat with wood preservative in accordance with Section 06 05 73 (Wood Treatment).

.2 Store and protect wood products.

.3 Timbers shall be handled and installed carefully to avoid damage. Use fibre slings during transportation. Timbers shall not be unloaded by dumping them from a truck or trailer. Peavies, cant hooks, pile hooks, or other pointed tools shall not be used for handling treated timbers.

3.2 Selection of Timber Components for Re-use in the Work

.1 Timber components chosen by the Contractor for re-use in the work are to be pre-selected by the Contractor as generally suitable for intended use. Upon notification of readiness by the Contractor, with minimum notification time of twenty-four (24) hours, the Departmental Representative will inspect the pre-selected timber components and either accept the timber as being generally suitable for intended use, or require the Contractor to replace any unsuitable timber with new material. The Departmental Representative's decision as to acceptability of timber components for re-use in the work is final.

3.3 Installation

.1 Comply with requirements of the CWC Wood Design Manual supplemented by the following requirements:

.1 Install members true to line, levels, and elevations, square and plumb.

.2 Construct continuous members from pieces of longest practical length.

.3 No treated timbers shall be cut on site except as accepted by the Departmental Representative.

3.4 Erection

.1 Frame, anchor, fasten, tie, and brace members to provide necessary strength and rigidity.

.2 Counterbore bolts where necessary to provide clearance for other work. Fill counterbore holes with mastic after bolts have been tightened.

.3 Plate washers are required under the heads and nuts of all timber members. Washer sizes to be as indicated on the Drawings.

.4 Bolts to be tightened from the nut end only and tightened to the full human effort with a spud wrench or with an impact wrench.

.5 Holes for drift bolts and pins shall be 0.8 mm to 1.5 mm smaller than the diameter of the drift bolt or pin.

.6 Holes for bolts shall be same diameter as the bolt, to provide a driving fit.

.7 Unused holes in pressure-treated timber to be plugged with full length pressure treated creosoted dowels and covered with mastic.

.8 Counterbores shall be filled with mastic after the bolts have been installed and tightened.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section describes the common work results applicable to electrical disciplines.

.2 Demolition, removal and salvage (where specified) of existing electrical services at the gas float is covered under Section 02 41 13 (Selective Site Demolition).

1.2 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

.3 Section 01 35 29 (Health and Safety Requirements)

.4 Section 01 51 00 (Temporary Facilities)

.5 Section 01 78 30 (Closeout Submittals)

.6 Section 02 41 13 (Selective Site Demolition)

.7 Section 26 05 20 (Low Voltage Wire and Box Connectors)

.8 Section 26 05 21 (Low Voltage Wires and Cables)

1.3 Measurement and Payment Procedures

.1 No measurement or payment will be made under this section. All work performed to satisfy the requirements of this section shall be paid under the relevant payment items in Section 26 05 21 (Low Voltage Wires and Cables).

1.4 References

.1 Canadian Standards Association

- .1 CSA C22.1, Canadian Electrical Code, Part 1 (Current Edition), Safety Standard for Electrical Installations.
- .2 CSA C22.2 No. 65, Wire Connectors.
- .3 CAN3-C235, Preferred Voltage Levels for AC Systems, 0 to 50,000 Volts.

.2 Electrical and Electronic Manufacturer's Association of Canada (EEMAC)

- .1 EEMAC 2Y-1, Light Gray Colour for Indoor Switch Gear.

.3 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)

.1 IEEE SP1122, The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.

.4 National Building Code of Canada.

.5 Telecommunications Industry Association/Electronic Industries Alliance:

.1 TIA/EIA Standard 568C – Commercial building telecommunications wiring standard.

1.5 Definitions

.1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these Specifications, and on Drawings, are those defined by IEEE SP1122.

1.6 Operating Requirements

.1 Operating voltages: to CAN3-C235.

.2 Motors, control and distribution devices and equipment are to operate satisfactorily at 60 hertz within normal operating limits established by CAN3-C235. Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

.3 Language operating requirements: provide identification nameplates and labels for control items in English only.

1.7 Site Conditions – Not Used

1.8 Scheduling of Work

.1 Schedule work to minimize interruptions to existing electrical services.

.2 The gas float electrical services are to be de-energized and locked-out throughout construction. Coordinate the de-energization and lock-out of electrical services with the Departmental Representative.

.3 Isolation and out-of-service duration for the electrical services serving the gas float shall be coordinated with the Departmental Representative, and shall be performed in a manner to minimize impact on DND operations.

.4 Notify the Departmental Representative a minimum of ten (10) working days prior to any planned interruption of service. Notify the Departmental Representative immediately of any accidental interruption of electrical system.

.5 Remove existing electrical services as indicated.

.6 Upon reinstatement of electrical services, coordinate commissioning and energization with the Departmental Representative.

1.9 Submittals

.1 Provide submittals to the Departmental Representative in accordance with the requirements of Section 01 33 00 (Submittal Procedures).

.2 Product Data: (if new electrical components are required)

.1 Submit manufacturer's printed product literature, specifications and datasheets and include product characteristics, performance criteria, physical size, materials, finish and limitations.

.2 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures, maintenance instructions and manuals.

.3 Quality Control:

.1 Provide CSA certified equipment and material with visible, legible labels.

.2 Where CSA certified equipment and material is not available, submit such equipment and material to the Departmental Representative and authority having jurisdiction for acceptance before delivery to site.

.3 Submit test results of installed electrical systems and instrumentation.

.4 Permits and fees: in accordance with General Conditions of Contract.

.5 Submit electrical permit and certificate of acceptance from authority having jurisdiction upon completion of work to the Departmental Representative.

1.10 Quality Assurance

.1 Qualifications: electrical work to be carried out by qualified, licensed electricians or apprentices in accordance with authorities having jurisdiction.

.2 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29 (Health and Safety Requirements).

1.11 Delivery, Storage and Handling

.1 Material Delivery Schedule: provide the Departmental Representative with schedule in accordance with the requirements of Section 01 33 00 (Submittal Procedures).

1.12 Waste Management and Disposal

.1 Collect and separate waste and packaging materials for reuse, recycling, and disposal in appropriate on-site bins.

.2 Divert unused wiring materials from landfill to metal recycling facility as accepted by the Departmental Representative.

1.13 System Start-up (by DND Personnel)

.1 Instruct the Departmental Representative and DND operating personnel in operation, care and maintenance of systems, system equipment and components.

1.14 Operating Instructions

.1 Provide operating instructions for each system and principal item of equipment, as specified in the technical sections, for use by operation and maintenance personnel.

.2 Operating instructions to include following:

- .1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.
- .2 Start-up, proper adjustment, operating, and shutdown procedures.
- .3 Safety precautions.
- .4 Procedures to be followed in event of equipment failure.
- .5 Other items of instruction as recommended by manufacturer of each system or item of equipment.

.3 Engrave operating instructions on approved laminated plastic.

.4 Post instructions where directed.

.5 For operating instructions exposed to weather, provide weather-resistant materials or weatherproof enclosures.

.6 Ensure operating instructions will not fade when exposed to sunlight and are secured to prevent easy removal or peeling.

.7 Operating instructions to be in English language only.

2. PART 2 – PRODUCTS

2.1 Sustainable Requirements Environmental

.1 Choose products and materials with recycled content or resource efficient characteristics whenever possible. Use least toxic sealants, adhesives, sealers and finishes necessary to comply with the requirements of the project.

2.2 Materials and Equipment

.1 Material and equipment to be CSA certified. Where CSA certified material and equipment are not available, obtain special acceptance from the Departmental Representative and authority having jurisdiction before delivery to site and submit such acceptance as described in Clause 1.9 Submittals of this section.

.2 Material and equipment to be suitable for a damp marine environment.

.3 Factory assemble control panels and component assemblies.

.4 Asbestos-containing Materials Prohibition: Any material containing any degree of asbestos is banned from use in any and all sites, designs, and projects.

2.3 Warning Signs

.1 Warning Signs: in accordance with requirements of authority having jurisdiction and as accepted by the Departmental Representative.

2.4 Wiring Terminations

.1 Ensure lugs, terminals, and screws used for termination of wiring are suitable for copper conductors.

2.5 Equipment Identification

.1 Identify electrical equipment with nameplates and labels as follows:

.1 Nameplates: 3-millimetre-thick plastic engraving sheet, matte white finish face, black core, lettering accurately aligned and engraved into core.

.2 Sizes per Table 26 05 00-1 as follows:

Table 26 05 00-1

Nameplate Sizes

Nameplate Size	Dimensions (mm)	No. Lines	Letter Height (mm)
Size 1	10 x 50	1	3
Size 2	12 x 70	1	5
Size 3	12 x 70	2	3
Size 4	20 x 90	1	8
Size 5	20 x 90	2	5
Size 6	25 x 100	1	12
Size 7	25 x 100	2	6

.2 Labels: embossed plastic labels with 6-mm-high letters unless specified otherwise.

.3 Wording on nameplates and labels to be accepted by the Departmental Representative prior to manufacture.

.4 Allow for minimum of twenty-five (25) letters per nameplate and label.

.5 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

.6 Disconnects, starters, contactors: indicate equipment being controlled and voltage.

.7 Terminal cabinets and pull boxes: indicate system and voltage.

.8 Transformers: indicate capacity, primary and secondary voltages.

2.6 Wiring Identification

.1 Identify wiring with permanent indelible identifying markings, numbered coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding throughout.

.3 Colour coding: to CSA C22.1.

.4 Use colour coded wires in communication cables, matched throughout system.

2.7 Conduit and Cable Identification

.1 Conduit and cable identification tags to be stainless steel with embossed markings at each end of conduit or cable, where conduit or cable enters wall, ceiling, floor, pull pit, tunnel, or building, and also at each splice.

.2 Complete cable schedule after installation including cable identification tags and submit to the Departmental Representative on the as-built drawings in accordance with Section 01 78 30 (Closeout Submittals).

2.8 Finishes

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two (2) coats of finish enamel.

.2 Paint indoor switchgear and distribution enclosures light gray to EEMAC 2Y-1.

3. PART 3 – EXECUTION

3.1 Preparation

.1 All existing utilities are shown according to available Record Drawings. The Contractor shall locate all existing utilities prior to construction, and shall notify the Departmental Representative of any conflicts a minimum of seventy-two (72) hours prior to construction. Any additional work required as a result of failing to pre-locate known or potential conflicts will be completed at the Contractor's expense.

.2 Electrical service will be reinstalled by DND personnel.

3.2 Installation (by DND Personnel)

.1 Carry out complete installation in accordance with CSA C22.1.

.2 Construct underground systems in accordance with CSA C22.3 No.1.

.3 Comply with TIA/EIA-569-C recommendations for separating unshielded copper control, voice and data communication cable from potential electromagnetic interference sources, including electrical power lines and equipment.

.4 Obtain and pay for electrical permits and fees, at the Contractor's own cost.

.5 Review Drawings from other disciplines for details related to the electrical installation scope of work including bonding of metallic parts. Coordinate electrical works with works of other disciplines such as structural, mechanical and civil disciplines including bonding of metallic parts.

3.3 Nameplates and Labels (by DND Personnel)

.1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.4 Coordination of Protective Devices (by DND Personnel)

.1 Ensure circuit protective devices such as over-current trips, relays and fuses are installed to required values and settings.

.2 Circuit breaker fault levels may be higher than standard ratings. Coordinate new circuit breaker fault levels with the Departmental Representative using existing single line diagrams.

3.5 Field Quality Control (by DND Personnel)

.1 Load Balance:

.1 Measure phase current to panel boards with normal loads (lighting) operating at time of acceptance; adjust branch circuit connections as required to obtain best balance of current between phases and record changes.

.2 Conduct the following tests in accordance with CSA C22.1-09, Canadian Electrical Code, Part 1:

.1 Power distribution system including phasing, voltage, grounding and load balancing.

.2 Circuits originating from branch distribution panels.

.3 Lighting and its control.

.4 Systems: fire alarm, communications, SCADA, fibre optic, and telephone.

.5 Insulation resistance testing:

.1 Megger 350-600 Volt circuits, feeders and equipment with a 1,000 V instrument.

.2 After installing cable but before splicing and/or terminating, perform insulation resistance test on each phase conductor.

.3 Check insulation resistance after each splice and/or termination.

.4 Check each feeder for continuity, short circuits and grounds. Ensure resistance to ground of circuits is not less than 100 megohms for one (1) minute, corrected to 20°C, before energizing.

.3 Carry out all stipulated electrical tests in the presence of the Departmental Representative, and upon completion of tests, submit load balance measurements and all electrical test results to the Departmental Representative for review.

.4 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

3.6 Cleaning (by DND Personnel)

.1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.

.2 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers supply for low voltage (LV) wire connectors and box connectors at the gas float. Electrical service at the gas float will be reinstalled by DND personnel.

1.2 Related Sections

.1 Section 01 33 00 (Submittal Procedures)

.2 Section 26 05 00 (Common Work Results for Electrical)

.3 Section 26 05 21 (Low Voltage Wires and Cables)

1.3 Measurement and Payment Procedures

.1 No measurement or payment will be made under this section. All work performed to satisfy the requirements of this section shall be paid under the relevant payment item in Section 26 05 21 (Low Voltage Wires and Cables).

1.4 References

.1 Canadian Standards Association

- .1 CAN/CSA-C22.2 No. 18, Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware.
- .2 CSA C22.2 No. 65, Wire Connectors.

.2 Electrical and Electronic Manufacturers' Association of Canada (EEMAC)

- .1 EEMAC 1Y-2 Bushing Stud Connectors and Aluminum Adapters (1200 Ampere Maximum Rating).

.3 National Electrical Manufacturers Association (NEMA).

1.5 Submittals

.1 Provide submittals to the Departmental Representative in accordance with Section 01 33 00 (Submittal Procedures).

.2 Product Data: (only needed if new electrical components are required)

- .1 Submit manufacturer's printed product literature, specifications, and datasheets and include product characteristics, performance criteria, physical size, materials, finish, and limitations.

.2 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures, and maintenance instructions and manuals.

2. PART 2 – PRODUCTS

2.1 Materials

.1 Pressure type wire connectors: to CSA C22.2 No. 65, with current carrying parts of copper sized to fit copper conductors as required.

.2 Fixture type splicing connectors: to CSA C22.2 No. 65, with current carrying parts of copper sized to fit copper conductors 10 American Wire Gauge (AWG) or less.

.3 Bushing stud connectors: to EEMAC 1Y-2 to consist of:

.1 Connector body and stud clamp for stranded copper conductors.

.2 Clamp for stranded copper conductors.

.3 Stud clamp bolts.

.4 Bolts for copper conductors.

.5 Sized for conductors as indicated.

.4 Clamps or connectors for armoured cable, as required: to CAN/CSA-C22.2 No.18.

.5 Asbestos-containing Materials Prohibition: Any material containing any degree of asbestos is banned from use in any and all sites, designs, and projects.

3. PART 3 – EXECUTION

3.1 Installation (by DND Personnel)

.1 Remove insulation carefully from ends of conductors and:

.1 Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CSA C22.2 No.65.

.2 Install fixture type connectors and tighten. Replace insulating cap.

.3 Install bushing stud connectors in accordance with EEMAC 1Y-2.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers supply at the gas float of low voltage (LV) copper conductors rated from 0 to 1,000 Volts (V). Electrical service at the gas float will be reinstalled by DND personnel.

1.2 Related Sections

.1 Section 01 33 00 (Submittal Procedures)

.2 Section 26 05 00 (Common Work Results for Electrical)

.3 Section 26 05 20 (Low Voltage Wire and Box Connectors)

1.3 Measurement and Payment Procedures

.1 LV electrical system components will not be measured individually. LV electrical system will be paid for under the Lump Sum Price tendered for ELECTRICAL: GAS FLOAT – MODIFICATIONS TO LV ELECTRICAL SYSTEM. Payment shall be full compensation for supply of LV electrical system complete with conductors, cables, connectors, terminations, outlet/conduit/junction/pull boxes, splitters, cabinets, conduit (including fastenings and fittings), hangers, supports, lighting, electrical ducts, disconnections and reconnections, and all work as described in the Drawings and as specified. Installation, connection, and testing of LV electrical system will be performed by DND personnel.

1.4 References

.1 Canadian Standards Association

.1 CSA-C22.2 No. 38, Thermoset-Insulated Wires and Cables.

.2 CSA-C22.2 No. 131, Type Teck 90 Cable.

1.5 Submittals

.1 Provide submittals to the Departmental Representative in accordance with Section 01 33 00 (Submittal Procedures).

.2 Product Data:

.1 Provide cable splice kit datasheets and installation instructions.

.2 Submit manufacturer's printed product literature, specifications and datasheets and include product characteristics, performance criteria, physical size, materials, finish and limitations.

.3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures and maintenance instructions and manuals.

2. PART 2 – PRODUCTS

2.1 General

.1 Conductors and cables to match existing unless otherwise noted.

.2 Asbestos-containing Materials Prohibition: Any material containing any degree of asbestos is banned from use in any and all sites, designs, and projects.

2.2 Cables and Reels

.1 Provide new cables on reels or coils.

.1 Mark or tag each cable and outside of each reel or coil, to indicate cable length, voltage rating, conductor size, and manufacturer's lot number and reel number.

.2 Each coil or reel of new cable to contain only one continuous cable without splices.

2.3 Teck 90 Cable (if required)

.1 Cable: in accordance with Section 26 05 00 (Common Work Results for Electrical).

.2 Conductors:

.1 Grounding conductor: copper.

.2 Circuit conductors: copper, size as indicated. Minimum size: 12 American Wire Gauge (AWG). Stranded for 10 AWG and larger.

.3 Insulation:

.1 Cross-linked polyethylene (XLPE).

.2 Rating: 600 V.

.4 Inner jacket: polyvinyl chloride (PVC).

.5 Armour: interlocked aluminum.

.6 Overall covering: thermoplastic PVC.

.7 Fastenings:

.1 One (1)-hole steel straps to secure surface cables 50 millimetres (mm) and smaller. Two (2)-hole steel straps for cables larger than 50 mm.

.2 Channel type supports for two (2) or more cables at maximum of 600 mm centers.

.3 Threaded rods: 6 mm diameter to support suspended channels.

.8 Connectors:

.1 Watertight approved for Teck 90 cable.

.9 Splice kits:

.1 Watertight, inline, cold shrinkable, suitable for the cable and cable support method as indicated on the Drawings.

.2 No junction boxes shall be used to enclose the splice.

3. PART 3 – EXECUTION

3.1 Field Quality Control (by DND Personnel)

.1 Perform tests in accordance with Section 26 05 00 (Common Work Results for Electrical).

.2 Perform tests using method appropriate to site conditions and to acceptance of the Departmental Representative and local authority having jurisdiction over installation.

.3 Check insulation resistance of each phase conductor after each splice and/or termination.

.4 Perform tests before energizing electrical system.

3.2 General Cable Installation (by DND Personnel)

.1 Terminate cables in accordance with Section 26 05 20 (Low Voltage Wire and Box Connectors).

.2 Make terminations and splices only as indicated leaving 0.6 metre of surplus cable in each direction.

.1 Make splices and terminations in accordance with manufacturer's instructions using approved splicing kits.

.2 All splices to be watertight and tested in accordance with Section 26 05 00 (Common Work Results for Electrical).

.3 Install, support, and stagger splices in locations as indicated on the Drawings.

.3 Cable Colour Coding: to Section 26 05 00 (Common Work Results for Electrical).

.4 Conductor length for parallel feeders to be identical.

.5 Lace or clip groups of feeder cables at distribution centres, pull boxes, and termination points.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section covers the reinstatement of existing timber fender piles and associated rubbing poles (not embedded) at the D Jetty structure, and the reinstatement of existing timber locator piles at the gas float, as shown on the Drawings. Re-use of selected salvaged timber piles as indicated on the Drawings is a project requirement, except where the Departmental Representative accepts that salvaged timber piles are unsuitable for re-use in the work.

.2 Removal of existing timber piles as described on the Drawings, including storage for re-use, and identification and disposal where unsuitable for re-use, is covered under Section 02 41 16.01 (Structure Demolition), except that the submittal and execution requirements for pile extraction are covered under this section.

.3 This section also covers the supply and installation of new timber piles, in the event that some of the existing timber fender/locator piles prove to be unsuitable for re-use in the work.

.4 For re-use of other timber components (e.g., as timber pier framing), refer to Section 06 10 10 (Timber).

1.2 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

.3 Section 01 35 13.43 (Special Project Procedures for Contaminated Sites)

.4 Section 01 35 29 (Health and Safety Requirements)

.5 Section 01 35 43 (Environmental Procedures)

.6 Section 01 50 00 (Mobilization and Demobilization)

.7 Section 02 41 13 (Selective Site Demolition)

.8 Section 02 41 16.01 (Structure Demolition)

.9 Section 02 41 16.02 (Structure Relocation)

.10 Section 06 05 73 (Wood Treatment)

.11 Section 06 10 10 (Timber)

.12 Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation, and Disposal)

1.3 Measurement and Payment Procedures

.1 Reinstatement of timber fender piles and rubbing poles at D Jetty will not be measured individually. Payment for reinstatement of timber fender piles and rubbing poles at D Jetty will be made at the Lump Sum Price tendered for TIMBER PILING: D JETTY – REINSTATE TIMBER FENDER PILES AND RUBBING POLES. Payment shall be full compensation for all work in connection with reinstatement of timber fender piles and rubbing poles at D Jetty as described in this section and on the Drawings.

.2 Where existing timber fender piles and rubbing poles at D Jetty are identified by the Contractor and are accepted by the Departmental Representative as being unsuitable for re-use, measure the supply of new fender piles and rubbing poles in net length actually installed at D Jetty (in metres measured from tip elevation to cut-off elevation at pile top), as required for the work. Payment for TIMBER PILES: D JETTY – SUPPLY REPLACEMENT TIMBER FENDER PILES AND RUBBING POLES shall be full compensation for all work in connection with supply of new timber fender piles and rubbing poles at D Jetty, as described in this section and shall include for any pile length wastage associated with installation. Nominal net length of new timber fender piles and rubbing poles at D Jetty is included in the Unit Price Table for Tender pricing purposes. Payment for installation of these fender piles and rubbing poles is covered under Clause 1.3.1 of this section.

.3 Reinstatement of timber piles at the gas float will not be measured individually. Payment for reinstatement of timber piles at the gas float will be made at the Lump Sum Price tendered for TIMBER PILING: GAS FLOAT – REINSTATE TIMBER PILES. Payment shall be full compensation for all work in connection with reinstatement of timber piles at the gas float as described in this section and on the Drawings.

.4 Where existing timber piles at the gas float are identified by the Contractor and are accepted by the Departmental Representative as being unsuitable for re-use, measure the supply of new timber piles in net length actually installed at the gas float (in metres measured from tip elevation to cut-off elevation at pile top), as required for the work. Payment for TIMBER PILES: GAS FLOAT – SUPPLY REPLACEMENT TIMBER PILES shall be full compensation for all work in connection with supply of new timber piles at the gas float, as described in this section and shall include for any pile length wastage associated with installation. Nominal net length of new timber piles at the gas float are included in the Unit Price Table for Tender pricing purposes. Payment for installation of these piles is covered under Clause 1.3.3 of this section.

.5 Mobilization and demobilization of pile-driving equipment will be measured to Section 01 50 00 (Mobilization and Demobilization), and payment shall include all costs in connection with mobilization and demobilization as specified in that section.

.6 Aluminum pile coverings (caps), steel through-bolts, straps, accessories, and preservative treatment are considered as incidental to the reinstatement of timber piles, and will not be measured or paid separately.

.7 Inspection monitoring (and reporting) for D Jetty underpier slope is considered incidental to the reinstatement of timber piles, and will not be measured or paid separately.

.8 There will be no additional payment for delays or downtime incurred by marine vessel traffic, permit requirements, water quality requirements, environmental closures required by Fisheries and Oceans Canada (DFO), or shutdowns due to the Contractor's non-compliance with regulations, permits, and the Environmental Management Plan.

.9 Failure of the Contractor to satisfy himself as to the acceptable means of undertaking the works in compliance with permits, the Environmental Management Plan, and regulatory agency requirements shall not constitute a basis for any additional payment.

1.4 References

.1 Canadian Standards Association (CSA):

.1 CAN/CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.2 CAN/CSA-O56-10, Round Wood Piles.

.3 CAN/CSA-O80 Series, Wood Preservation.

.2 American Society for Testing and Materials (ASTM):

.1 ASTM A 307, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.3 ASTM A153/Al53M, Standard Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware.

.4 ASTM D 25-99(2005), Standard Specification for Round Timber Piles.

.3 Wood Preservation Canada (WPC): "Best Management Practices for the use of Treated Wood in Aquatic and Wetland Environments (2012)".

.4 Fisheries and Oceans Canada (DFO): "Guidelines to Protect Fish and Fish Habitat From Treated Wood Used in Aquatic Environments in the Pacific Region, Technical Report of Fisheries and Aquatic Sciences 2314 (Hutton and Samis, 2000)".

1.5 Definitions

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

1.6 Submittals

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

.2 Product Data: Submit manufacturer's printed product literature, specifications, and datasheet in accordance with Section 01 33 00 (Submittal Procedures).

.3 As part of the detailed Construction Work Plan, and in accordance with Section 01 33 00 (Submittal Procedures), the Contractor shall prepare a section that describes the methods and procedures for timber pile extraction and reinstatement at D Jetty and at the gas float. Timber pile extraction and reinstatement activities shall not begin until: 1) the Construction Work Plan has been reviewed and accepted by the Departmental Representative; and 2) other notifications and review have been completed as necessitated by the permits or other requirements of the Contract. At a minimum, the timber pile extraction and reinstatement method and procedures shall contain the following information:

.1 Proposed method of extracting and driving timber piles: indicate proposed method of pile-driving. If proposed method to drive the piles does not utilize vibratory piling hammer, then submit alternative equivalent method for review by the Departmental Representative.

.2 The Contractor's method for extracting and driving timber piles designed to reduce underwater sound levels to no greater than the prescribed limits, and to monitor underwater sound levels during the pile extraction and pile-driving work.

.3 Impact hammers: provide manufacturer's name, type, rated energy per blow at normal working rate, mass of striking parts of hammer, mass of driving cap, and type and elastic properties of hammer and pile cushions.

.4 Non-impact methods of installation such as vibratory hammers, jacking, or other means: provide full details of characteristics necessary to evaluate performance.

.5 Methods for vertical and lateral support of timber piles during pile installation.

.6 Proposed method of pile head/tip protection during pile-driving, and proposed method of protection from abrasion and/or impact by the Contractor's plant and equipment during the work.

.7 Pile layout drawings and planned sequence of pile-driving.

.4 Quality Control submittals:

.1 Test reports: In accordance with the requirements of Section 01 33 00 (Submittal Procedures), submit three (3) copies of inspection reports for new piles from certified independent testing laboratories, indicating compliance in accordance with applicable CSA standards.

.2 Certificates: In accordance with the requirements of Section 01 33 00 (Submittal Procedures), submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

1.7 Requirements of Regulatory Agencies

.1 The scheduling of the timber pile extraction and pile-driving work shall be carried out in strict accordance with all acts, regulations, and permit requirements. The Contractor shall hold harmless and protect DND from all claims, costs, and delays that could or do arise from the Contractor's non-compliance with any act, regulation, or permit requirement.

.2 Notwithstanding the acquisition of permits by the Departmental Representative, the Contractor shall investigate and satisfy itself as to the acceptable means of undertaking the works in compliance with the permits, the Environmental Management Plan, and regulatory agency requirements.

.3 The Contractor shall notify the Departmental Representative not less than five (5) working days prior to commencing the timber piling work.

.4 The Contractor shall notify the Queen's Harbour Master not less than ten (10) working days prior to commencing the timber pile extraction or pile-driving work, for major marine equipment moves during the work and at completion of the timber piling work. The Contractor shall maintain liaison with the Queen's Harbour Master as the work progresses, and shall keep the Departmental Representative informed of all such communications.

.5 Ensure that equipment used in construction does not block marine navigation.

.6 Work shall be carried out in accordance with the Guidelines to Protect Fish and Fish Habitat from Treated Wood used in Aquatic Environments in the Pacific Region, Technical Report 2314.

1.8 Existing Conditions and Site Information

.1 For existing jetty conditions, refer to the Reference Drawings and Data Reports listed in the Specification Index.

.2 For geotechnical investigation reports, dive inspection reports, and other background data, refer to the Data Reports listed in the Specification Index.

.3 The Contractor is informed that debris may lie on, or be partly or fully embedded within the seabed soils in the area of the pile-driving work. For debris survey information, refer to the Data Reports listed in the Specification Index.

.4 The Contractor is informed that Obstructions may lie fully embedded within the seabed soils in the area of the pile-driving work.

.5 The Contractor is informed that variable pile-driving conditions may be encountered in the work.

.6 Notify the Departmental Representative in writing if subsurface conditions at the Work Site differ from those indicated and await further instructions from the Departmental Representative.

1.9 Operating Environment

.1 Management of environmental effects (such as wind, tidal state, and sea state) on timber piling work shall be the sole responsibility of the Contractor.

.2 The timber piles will be installed in seawater. The normal tidal range at Esquimalt Harbour is indicated on the Drawings. Extreme tidal elevations, including surge effects, will exceed the indicated tidal range.

.3 The design ambient temperature range is from -6°C minimum to 24°C maximum.

.4 Historical wind records taken in the vicinity of Esquimalt Harbour may be obtained from Environment Canada.

2. PART 2 – PRODUCTS

.1 New round timber piles (if required): To CAN/CSA-056, with minimum butt size of 36 cm and tip diameter related to length as indicated in Table A-1 of that standard. Order length of piles to suit project requirements.

.2 Pile branding: Brand treated piles to indicate producer, in accordance with CAN/CSA-O56.

.3 Piles to be clean peeled. Do not damage the pile surface.

.4 Pile species: Coastal Douglas fir.

.5 Each new pile is to be supplied in one piece; splices are not permitted.

.6 The Departmental Representative will be sole judge of quality and dimension of piles. Remove rejected piles from site of work.

.7 Bolts, nuts, and washers: to ASTM A307.

.8 Wire nails, spikes, and staples: to CAN/CSA B111.

.9 Pile coverings: Annealed aluminum sheet, gauge as described on the Drawings.

.10 Hot dip galvanize bolts, nuts, washers, and, unless otherwise specified, staples, cable clamps, pipe sleeves, spikes, and nails: to ASTM A153/A153M. Galvanize other hardware to ASTM A123/A123M.

.11 Asbestos-containing Materials Prohibition: Any material containing any degree of asbestos is banned from use in any and all sites, designs, and projects.

2.2 Wood Preservation

.1 Additional wood preservation of re-used timber piles is not required.

.2 For field preservation treatment of re-used timber components, refer to Section 06 05 73 (Wood Treatment).

.3 Treat new timber piles with wood preservative treatment in accordance with Section 06 05 73 (Wood Treatment) and WPC Best Management Practices for the Use of Treated Wood in Aquatic and Wetland Environments.

2.3 Equipment

.1 Pile hammer: select and use pile hammer of sufficient weight and energy to suitably install specified pile without damage into soils expected to be encountered.

.2 Comply with the Coasting Trade Act for vessels used for this Contract.

3. PART 3 – EXECUTION

3.1 General

.1 The sequence of work shall be as described on the Drawings.

.2 The Contractor is responsible for all temporary conditions during construction, including moorage and loads from floating construction equipment and environmental effects during the work.

.3 The Contractor's floating construction equipment shall not impede other vessels.

.4 Make adequate provision for access and support of piling equipment during performance of the work.

.5 Ensure that pile extraction, pile-driving, and methods of construction do not cause traffic disruptions, damage to existing jetty structures or jetty hardware, damage to existing utilities, or damage to the environment. In the event that the Contractor causes such damage, then he shall be responsible for all necessary repairs and at his sole expense.

.6 The Contractor shall, within ten (10) working days, repair any damage made to the existing jetty structures, jetty hardware, or utilities and restore to original or better condition at the Contractor's sole expense. Failure to do so will be considered non-compliance by the Contractor as defined by the Contract.

3.2 Preparation and Protection

.1 Take all necessary precautions, including the provision of suitable screening fences and barriers to protect public, existing structures, facilities, and services from damage due to pile extraction, pile installation, and associated works.

.2 Protect existing jetty structures, services, and work of other sections from hazards due to pile extraction and pile-driving operations and against damage caused by the Contractor's floating construction equipment, tugboats, or by other construction activities throughout the work.

.3 Protect public and construction personnel, and adjacent structures from hazards attributable to pile extraction and pile-driving operations.

.4 Sequence all pile extraction and pile-driving operations and methods to avoid damage to existing jetty structures.

.5 Avoid dropping, bruising, or breaking of wood fibres. Fibre slings shall be used, except where accepted otherwise by the Departmental Representative.

.6 Avoid breaking surfaces of treated piles.

.7 Do not damage surfaces of treated piles below cutoff elevation.

.8 Protect timber piles from damage, abrasion, or impact by the Contractor's plant and equipment during the work.

.9 Treat cuts, breaks, or abrasions on surfaces of treated piles, bolt holes, and field cuts in accordance with CSA-O80 Series and as specified on the Drawings.

.10 During all in-water and above-water timber pile extraction and pile-driving work, environmental protection shall comply with the requirements of Section 01 35 43 (Environmental Procedures), Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), the Environmental Management Plan, and the Environmental Protection Plan.

.11 Do not allow buoyant items that have been demolished or detached from their original position (i.e., floating debris) to float beyond the Work Site. Do not allow such floating debris to cause any hindrance or obstacle to marine traffic and DND operations. Identify and collect such floating debris on a daily basis, and dispose in accordance with the Specifications.

.12 Provide temporary fender protection along the waterside faces (north and east berth faces) of D Jetty structure to protect the existing concrete deck structure and concrete piles from abrasion or impact damage caused by the Contractor's floating construction equipment, tugboats, or by other construction activities. The temporary fender protection shall comprise timber or rubber fender units, or combination thereof, to the Departmental Representative's satisfaction, and shall remain in place from commencement of structure demolition until reinstatement of the timber fender piles, corner dolphin piles, and floating fender logs in that area of the work.

3.3 Selection of Piles for Re-use in the Work

.1 Timber piles salvaged and chosen by the Contractor for re-use in the work are to be pre-selected by the Contractor, after extraction from the seabed, as generally suitable for intended use.

.2 Upon notification of readiness by the Contractor, with minimum notification time of twenty-four (24) hours, the Departmental Representative will inspect the pre-selected piles and either accept the piles as being generally suitable for intended use, or require the Contractor to replace any unsuitable piles with new material.

.3 In the event that some pre-selected piles are deemed by the Departmental Representative as being unacceptable for re-use, those piles shall not be re-used in the work, and the Contractor shall then supply new piles for inspection by the Departmental Representative. The notification time may, at the Departmental Representative's sole discretion, be waived for this inspection of new piles.

.4 The Departmental Representative's decision as to acceptability of timber piles for re-use in the work is final.

3.4 Pile Installation

.1 Carry out pile-driving using marine-based floating equipment in conformance with the Environmental Management Plan, Environmental Protection Plan, provincial regulations, and the requirements of this section.

.2 Carry out pile-driving in conformance with applicable Noise Bylaws, as described in Section 01 35 43 (Environmental Procedures).

.3 If proposed method to drive the timber piles into the seabed does not utilize vibratory piling hammer, then submit alternative equivalent method for review by the Departmental Representative, in accordance with Clause 1.6 of this section.

.4 Use work procedures and marine-based floating equipment that will ensure turbidity in the water column does not exceed the prescribed limits throughout the work.

.5 Use pile-driving equipment appropriate for the soil conditions. Use pile-driving equipment that generates the minimum amount of energy necessary to drive the timber piles to the design elevations described on the Drawings.

.6 In the event that the Contractor's pile-driving equipment is inadequate to perform the work or to maintain schedule, then the Contractor shall mobilize and use larger pile-driving equipment suitable for the work, at the Contractor's sole expense.

.7 At start of, and during pile-driving operations (daily, except as otherwise allowed at discretion of the Departmental Representative), monitor underwater sound pressure levels (SPLs) to confirm that the pressures do not exceed the maximum allowable levels.

.8 Underwater noise during pile extraction and pile-driving operations shall be controlled and monitored in accordance with the following performance criteria. For pile extraction or pile-driving activities that may result in SPLs of greater than 206 decibels (dB) SPL_{peak} re 1 (micropascal [µPa]) at 1.0 metre (m) distance or further from the face of pile, the following mitigation measures will be employed:

.1 The Contractor shall undertake mitigation measures that minimize the transmission of sound pressure. Potential mitigation measures may include deployment of a "bubble curtain" designed by the Contractor to surround the entire length of each pile being extracted/driven and attenuate shock waves radiating out from the pile.

.2 The Contractor shall suspend all pile-extraction/driving activities and employ further mitigation measures to reduce the pressure wave if pile driving activities result in hydrophone readings in excess of 206 dB SPL_{peak} re 1 (µPa), measured 1.0 m distance or further from the pile being extracted/driven or should there be any sign of dead or injured fish within the work area. The Contractor shall consult with DFO and implement required mitigation prior to recommencing pile extraction/driving activities. The design of the mitigation measures shall be the responsibility of the Contractor, but must meet DFO requirements and adhere to the Environmental Management Plan.

.9 Sequence the pile extraction and pile-driving work to minimize construction duration, and in conformance with the sequence described on the Drawings.

.10 Provide pile-extraction/pile-driving equipment and all accessories necessary to remove/install the piles as specified, and as described on the Drawings.

.11 Use driving caps and cushions to protect piles as necessary. Reinforce pile heads if necessary. Piles with damaged heads after cut-off will be rejected by the Departmental Representative.

.12 Use templates to hold piles securely and accurately in position while driving.

.13 Deliver hammer blows along axis of pile. Ensure pile is not overstressed.

.14 Ensure that the leads of the pile-driving equipment do not exert lateral forces on the piles during driving. No adjustment of a possible misalignment will be permitted during driving, except at the very initial stage.

.15 Drive each pile continuously to final tip elevation as indicated on the Drawings.

.16 Piles are to be driven so that splitting, brooming, or other damage does not occur.

.17 Place driving helmet, cap, and cushion block combination capable of protecting pile head between top of pile and ram to prevent impact damage to pile. Use block helmet to transmit energy uniformly to pile and to minimize loss of energy.

.18 Replace block if it is damaged, split, highly compressed, charred, or burned or has become spongy or deteriorated, with a new block.

.19 During pile driving, restrain lateral movement of piles at intervals not exceeding 6 m over length between ground surface and driving head.

.20 Treat bolt holes and exposed ends of cut off piles as specified by Section 06 05 73 (Wood Treatment), and as indicated on the Drawings.

.21 Install aluminum pile coverings on tops of piles immediately after treatment; bend edges down over sides of pile, neatly trim and fasten with eight (8) large-headed roofing nails.

.22 If conditions are encountered that make it difficult to drive a pile in the location shown and to advance the pile to the tip elevation shown on the Drawings, employ all reasonable means to advance the pile.

.23 Pile driving work shall be undertaken in a manner to protect the existing underpier armoured slope at D Jetty (and its constituent materials) from damage or sloughing during the work. The Contractor shall visually monitor and inspect the armoured slope under the east portion of D Jetty (as shown on the Drawings) for movement, sloughing, or slope deterioration at weekly intervals during pile extraction and during pile-driving work. Conduct each monitoring inspection jointly with the Departmental Representative (or designate). Provide brief written report to the Departmental Representative for each visual monitoring inspection, within twenty-four (24) hours of completion of the inspection.

.24 Installed piles will be subject to acceptance of the Departmental Representative:

.1 The Departmental Representative will be sole judge of acceptability of each pile with respect to acceptable quality of re-used piles, depth of penetration, depth of embedment, and installation accuracy.

.2 Do not remove pile-driving equipment from site until the Departmental Representative has accepted final driving of all piles.

3.5 Tolerances in Driving

.1 Variation of not more than 6 millimetres (mm) per 300 mm of pile length from vertical is permitted for plumb piles.

.2 Center of butts: within 100 mm of location indicated, but must fit the prior positioning along the fender beams on the berthing faces of D Jetty, and must fit the locator collars at the gas float.

.3 Manipulation of piles shall not be permitted.

.4 Re-drive heaved piles to required tip elevation.

.5 Remove and replace damaged piles, mislocated piles, and piles driven out of alignment, and provide additional piles driven as directed.

3.6 Pile-Driving Records

.1 Maintain accurate records of driving for each timber pile, including:

.1 Date, weather, and tidal levels.

.2 Type and make of hammer, stroke, and related energy.

.3 Other driving equipment, including water jet, driving cap, and cushion block type and thickness.

.4 Pile size, length, and location of pile.

.5 Sequence of driving piles in pre-selected pile numbering system.

.6 If impact hammer method is used, record blow counts for each 305 mm of penetration for entire length of pile and for each 25 mm for the final 150 mm of penetration.

.7 If vibro hammer method is used, record duration of active pile-driving work for each pile installed (i.e., not counting down-time).

.8 Elevation of refusal where bedrock is encountered.

.9 Seating procedures where relevant.

.10 Final tip and cut-off elevations.

.11 Elevation of adjacent piles before and after driving of each pile.

.12 Other pertinent information such as interruption of continuous driving, or pile damage.

.2 As a component of the Daily Report, provide the Departmental Representative with pile-driving records for all piles driven or partly driven during the previous day.

.3 At completion of the work, provide the Departmental Representative with one (1) copy of all pile-driving records.

3.7 Waste Management and Disposal

.1 Place materials defined as hazardous or toxic in designated containers.

.2 Dispose of removed materials, including creosoted or treated timber components (including end pieces, wood scraps, and sawdust), to appropriate licensed Disposal Facility in Canada or the U.S. except where specified otherwise, in accordance with provincial or state regulations and/or authority having jurisdiction.

.3 Creosoted or preservative-treated wood must not be disposed of through incineration, unless that disposal method is accepted by the Departmental Representative.

.4 Transport material designated for disposal by approved haulers to receiving organizations in accordance with regulations. Do not deviate from haulers and receiving organizations listed in the Construction Work Plan without prior written authorization from the Departmental Representative.

.5 Off-load, process, treat, and dispose of timber piling debris to receiving organizations in accordance with regulations. Do not deviate from the Contractor Off-Site Off-load, Processing, Treatment, and Disposal Facilities that are included in the Construction Work Plan without prior written authorization from the Departmental Representative.

.6 Dispose of unused wood preservative at official hazardous material collections site that is permitted to accept such materials.

.7 Do not dispose of unused preservative material into sewer system, streams, or lakes; onto ground; or in other locations where they will pose health or environmental hazards.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 This section describes details regarding remedial dredging, debris removal, Suspected Unexploded Explosive Ordnance (UXO) removal, on-site barge dewatering, and in-water transportation of dredge material, debris, and Suspected UXO from the Work Site to the Contractor Off-Site Offload Facility related to remedial dredging activities. Dredging activities include Required Dredging work to remove contaminated sediments from the Work Site and potential Contingency Re-Dredging to remove Dredge Residuals or Missed Inventory contaminated materials, if the Departmental Representative's confirmation sampling and testing results indicate the need for Contingency Re-Dredging in order to meet remedial cleanup objectives.

.2 The Contractor is responsible for reviewing the anticipated water depths based on tidal elevations, the presence of structure and associated elevations relative to the Dredge Prism, and information provided in the Specifications, Environmental Management Plan (EMP), and other Contract documents regarding the nature of the material to be encountered at the Work Site to inform the selection of appropriate dredging or excavation equipment that will allow for removal of the required material and prevent grounding of in-water equipment. The Contractor shall assume that till or bedrock material may be present within the Dredge Prism. If a till or bedrock surface is encountered within the Dredge Prism during Required Dredging or Contingency Re-Dredging, the Contractor shall immediately notify the Departmental Representative and provide evidence as to why they believe they have encountered till or bedrock material. The Departmental Representative will review the Contractor's evidence for the presence of the till or bedrock surface. The Contractor is not required to remove the till or bedrock material to the Required Dredge Elevation or Targeted Cut Thickness or Contingency Re-Dredging thickness to achieve remedial cleanup objectives. The intent of remedial dredging is to remove contaminated sediment and not to remove till or bedrock material, which is not contaminated sediment. The Dredge Pay Volume will not include volume of till or bedrock material left un-dredged.

.3 Dredging activities shall be completed according to the sequencing and access requirements described in these Specifications, the Drawings, and the approach described in the Contractor's Construction Work Plan.

.4 The Contractor is responsible for evaluating the conditions at the Work Site to determine its own means and methods, number of equipment, and whether specialized dredging equipment or techniques may be required to conduct the dredging in nearshore areas, protect existing structures from damage or instability, prevent grounding of in-water equipment, safely remove and transport Suspected UXO, and complete all dredging and material placement work by March 31,

2017. Existing structures include the F/G Jetty gas float structures, D Jetty structures, the wave attenuating breakwater, and associated floats.

.5 Dredging work shall be completed using mechanical dredging equipment.

.6 Descriptions of material to be dredged (including contaminated sediment and Dredge Debris) are provided in the Appendices and Reference Documents attached to the Specifications. The Contractor shall review this information and use it to inform the Contractor's work.

.7 The Contractor shall plan its work to remove sediment, encountered Dredge Debris, and Suspected UXO to the Required Dredge Elevations or Targeted Cut Thickness as shown on the Drawings, plus plan for additional contingency removal for Contingency Re-Dredging material, as described in this section.

.8 The Contingency Re-Dredging for removal of either residuals and/or Missed Inventory contamination may be required. Only one Contingency Re-Dredging pass will be required if confirmation sampling and testing results indicate that there is either Missed Inventory or that residuals concentrations exceed criteria following completion of Required Dredging.

.9 The Contractor becomes the owner of, and is responsible for, any soil, sediment, debris, effluent, or other material once it is removed, dredged, or excavated to be loaded on a vehicle, barge, or other vessel for transport to a Contractor Off-Site Offload Facility, Processing Facility, Disposal Facility, or Treatment Facility, with the exception of Suspected UXO or structures, sites, or things that may be valued for their historical, archaeological, architectural, and paleontological significance as determined by the Archaeological Monitor. These last two items remain the property of Canada.

.10 The Contractor is allowed to passively dewater dredge material on the haul barge within specified locations of the Work Site, using filter media (such as filter fabric) to remove suspended solids from any barge effluent discharge, in a manner that is compliant with the water quality requirements presented in the Specifications and EMP. The Contractor shall be responsible for fully understanding these water quality requirements, monitoring its work and complying with EMP requirements and all permit conditions.

.11 Passive barge dewatering is not allowed when dredging sediments within Dredge Unit (DU) 4 and DU5 in the D Jetty North Zone, as shown on the Drawings and described in these Specifications. The Contractor shall be required to use a sealed (watertight) barge when working in these areas of the Work Site. Collect, store, treat as necessary, and discharge or dispose of effluent from dredging activities in such a manner that 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 performance objectives of the EMP.

.12 Barge dewatering (i.e., release of dredge material effluent from the barge) is not allowed during in-water barge transportation of dredge material and debris from the Work Site to the Contractor Off-Site Offload Facility. The Contractor shall collect, store, treat as necessary, and discharge or dispose of effluent from barges in such a manner that meets the water quality criteria described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) and Section 01 35 43 (Environmental Procedures), and all requirements of the EMP.

.13 All Contractor floating equipment shall be marked with lights, lighted buoys, or Departmental Representative-accepted or Queen's Harbour Master (QHM)-accepted equivalent, whenever operations and/or floating equipment laydown will occur during non-daylight hours.

.14 The Contractor shall ensure that all anchor lines are clearly marked and set in such a manner so as to not interfere with active navigation operations in the Work Site or in Esquimalt Harbour. The Contractor shall ensure that anchoring does not come into contact or otherwise impact the anchoring system of the wave attenuating breakwater shown on the Drawings.

.15 The Contractor is responsible for selecting the appropriate dredging equipment that considers the conditions at the Work Site, character of materials, and existing structures adjacent to the dredge areas that may be encountered during dredging operations. By submitting its Tender, the Contractor acknowledges that it has carefully considered these conditions and other project considerations and included appropriate means and methods for dredging activities.

.16 Table 35 20 23-1 provides the estimated surface area and Dredge Pay Volume associated with Required Dredging and assumed Contingency Re-Dredging for each Dredge Unit. The table is presented for Contractor convenience only.

Table 35 20 23-1
Dredge Pay Volume Summary by Dredge Unit

Dredge Unit (DU)	Surface Area (m^2)	Required Dredge Pay Volume (m^3)	Assumed Contingency Re-Dredge Pay Volume (m^3)	Total Assumed Pay Volume (m^3)
DU 1	600	900	100	**1,000**
DU 2	1,200	2,800	200	**3,000**
DU 3	800	1,300	100	**1,400**
DU 4	1,400	3,000	200	**3,200**

Dredge Unit (DU)	Surface Area (m^2)	Required Dredge Pay Volume (m^3)	Assumed Contingency Re-Dredge Pay Volume (m^3)	Total Assumed Pay Volume (m^3)
DU 5	1,200	1,800	200	**2,000**
DU 6	1,700	2,700	200	**2,900**
DU 7	800	700	100	**800**
DU 8	5,600	9,300	800	**10,100**
TOTAL	**13,300**	**22,500**	**1,900**	**24,400**

Notes:

(1) Volumes presented in this table are estimated only and shall not be used for basis of measurement and payment. Refer to the Unit Price Table for Tender volumes associated with this work.

(2) Pay Volumes include Payable Overdredge Allowance.

(3) Pay Volumes include all required daylight slopes around the perimeter of the extents of dredging and interior Side Slopes between Dredge Units, as shown on the Drawings. Pay Volumes do not include potential Slough Material volume along the north face of D Jetty, as shown on the Drawings.

1.2 Measurement and Payment Procedures

.1 Measurement for dredging, barge dewatering, and in-water transportation shall be by the in-situ cubic metre (m^3), based on comparison of the Contractor's Pre-and Post-Construction Surveys.

.2 The actual in-situ volume of dredge material that the Contractor removes in order to achieve the Required Dredge Elevations and Targeted Cut Thickness is dependent upon the Contractor's dredging means and methods. The Payable Overdredge Allowance is the maximum extent of dredging below the Required Dredge Elevation or Targeted Cut Thickness that will be paid for. Dredging below the Payable Overdredge Allowance is considered Excessive Dredging and will not be paid. The Contractor shall select its means and methods to conduct its dredging work to stay within the Payable Overdredge Allowance limits to the extent practicable. Should the Contractor's means and methods result in Excessive Dredging, the Contractor shall account for the total dredge volume in its Tender price for Dredge Pay Volume under DREDGING, BARGE DEWATERING, AND IN-WATER TRANSPORTATION. The Dredge Pay Volume will be determined by calculating the total amount of in-situ cubic metres (m^3) of material dredged (based on comparison of the Dredging Pre-Construction and Dredging Post-Construction Surveys), minus Excessive Dredging.

.3 Payment for Required Dredging, Contingency Re-Dredging, in-water transportation, and barge dewatering of dredge materials shall be made by the in-situ cubic metre (m^3) at the Unit Price tendered for DREDGING, BARGE DEWATERING, AND IN-WATER TRANSPORTATION as shown in the Unit Price Table.

.4 Slough Material from the daylight slopes surrounding the perimeter of the Dredge Prism that does not require a 2H:1V slope, as shown on the Drawings, shall be considered incidental to the work and shall be included in the Tender Price for DREDGING, BARGE DEWATERING, AND IN-WATER TRANSPORTATION.

.5 For Tendering purposes, the Contractor shall assume that all dredge material is classified for disposal as industrial IL+ waste material under the current regulations for classification and disposal of contaminated sediment in British Columbia. Also, for Tendering purposes, if disposal is to occur in the United States, the the minimum level disposal shall be at a Resource Conservation and Recovery Act-permitted Subtitle D Landfill or more restrictive.

.6 IL+ material is to be transported by a hauler licensed within the Province of British Columbia or the applicable state if transported within the United States to haul such waste.

.7 All costs associated with removal, barge management, and in-water transportation of Dredge Debris and Suspected UXO shall be considered incidental to the work and shall be included in the Tender Price for DREDGING, BARGE DEWATERING, AND IN-WATER TRANSPORTATION.

.8 Final payment will be based on the final measurement of Dredge Pay Volumes, and final payment shall be reconciled with monthly progress payments to determine the amount of final payment.

.9 All costs associated with inspection monitoring of the D Jetty East Zone underpier slope shall be considered incidental to the work and shall be included in the Tender Price for DREDGING, BARGE DEWATERING, AND IN-WATER TRANSPORTATION.

1.3 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 31 19 (Project Meetings)

.3 Section 01 33 00 (Submittal Procedures)

.4 Section 01 35 13.43 (Special Project Procedures for Contaminated Sites)

.5 Section 01 35 43 (Environmental Procedures)

.6 Section 01 45 00 (Quality Control)

.7 Section 02 21 13 (Surveying and Positioning Control)

.8 Section 35 20 23.01 (Offloading, Material Processing, Upland Transportation and Disposal)

.9 Section 35 37 10 (Material Placement)

1.4 Definitions

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

1.5 Submittals

.1 Submit a detailed Construction Work Plan in accordance with Section 01 33 00 (Submittal Procedures) within fifteen (15) working days following Contract Award for review and acceptance by the Departmental Representative.

.2 As part of the detailed Construction Work Plan, the Contractor shall prepare a section that describes the approach that will be implemented for dredging, barge dewatering, and in-water transportation. Dredging, barge dewatering, and in-water transportation activities shall not begin until: 1) the Construction Work Plan has been reviewed and accepted by the Departmental Representative; and 2) agency- and community-required notifications and review have been completed. At a minimum, the dredging, barge dewatering, and in-water transportation approach description shall contain the following information:

.1 Equipment Layout, including position of dredge(s), water treatment barge if used, and in-water transport barges.

.2 Reference to the construction work schedule that identifies timing and sequencing for completion of dredging and in-water transportation activities, as they relate to other major elements of the work.

.3 Number, types, and capacity of equipment to be used, including names of dredge(s) and other marine vessels.

.4 In-water transportation route to the Contractor Off-Site Offload Facility.

.5 Means and methods for completion of dredging, barge dewatering, and in-water transportation activities:

.1 Methods, procedures, and equipment to be used for Required Dredging activities.

.2 Methods, procedures, and equipment to be used for anchoring floating equipment.

.3 Methods, procedures, and equipment to be used to provide lights, lighted buoys, or other required markings to warn other vessels of the presence of floating equipment and anchoring lines.

.4 Methods, procedures, and equipment to be used for all barge dewatering activities (including addition of amendments if

applicable) of dredge material, debris, and Suspected UXO as necessary.

.5 Methods, procedures, and equipment to be used for in-water transportation of contaminated dredge material, Dredge Debris, Demolition Debris and Suspected UXO to the Contractor Off-Site Offload Facility, including procedures for preventing release of sediment and water during transportation.

.6 Methods, procedures and equipment for protecting existing adjacent structures to be maintained in place during the work.

.6 Debris Removal:

.1 Procedures and equipment for collecting and disposing of submerged and floating debris encountered during dredging operations.

.2 Procedures and equipment for offloading, stockpiling (if necessary), transport, and disposal of debris. This information shall include methods to prevent spillage of debris back into the waterway during offloading and cleanup of the barge.

.7 Methods and procedures for managing Suspected UXO found during dredging, barge dewatering, and in-water transportation. This portion of the Construction Work Plan shall satisfy the requirements identified in Annex C to Chapter 3 of DND's Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011. Specifically, the Contractor shall provide, at a minimum, the following information as part of the Construction Work Plan:

.1 Methods, procedures, and equipment to be used for segregating Suspected UXO identified by chance find call-outs, including procedures for meeting federal, provincial, and local regulations related to the handling, storage, and transportation and disposition of explosives.

.2 Key UXO Qualified Personnel roles and responsibilities.

.3 A preliminary summary of risks associated with Suspected UXO related activities during dredging, barge dewatering and in-water transportation.

.4 The Contractor’s proposed communication and reporting related to Suspected UXO, as outlined in the Specifications.

.1 Documentation and records related to Suspected UXO, including a daily catalogue of Suspected UXO items and representative photographs.

.2 Site-specific training for all Contractor personnel, subcontractors, and visitors to the Work Site.

.3 Security related to the temporary storage of Suspected UXO, including during down times and after hours, in accordance with the Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011.

.4 Excavation procedures related to Suspected UXO.

.5 Segregation procedures related to Suspected UXO.

.6 Temporary storage procedures related to Suspected UXO, in accordance with the Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011.

.7 Quality control related to Suspected UXO.

.3 Daily Reporting: As part of the Daily Construction Report, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall provide a daily record of the area(s) dredged, the estimated Dredge Pay Volume removed, estimated Excessive Dredging volume removed, estimated Contingency Re-Dredging volume removed (as necessary), number of haul barge trips to the Contractor Off-Site Offload Facility, estimated volume and tonnage of dredge materials (including Dredge Debris and Suspected UXO) transported to the Contractor Off-Site Offload Facility, Progress Surveys, and a summary of other details of the work. The Contractor shall also provide certification of seaworthiness of loaded barges with the Daily Construction Report. This daily record shall be submitted to the Departmental Representative the morning following completion of the work for that day as part of the Daily Construction Report. The Daily Construction Report shall be signed by Contractor's site superintendent and quality control manager.

.4 Weekly Reporting: As part of the Weekly Construction Report, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall provide a summary of the week's dredging activities in its Weekly Construction Report to be submitted to the Departmental Representative the following Monday morning. The Weekly Construction Report shall identify work completed to date including an update of all quantities on the Unit Price Table and anticipated work to be completed in the present week, and present the latest Progress Survey and Post-Construction Survey information. The Weekly Construction Report shall be signed by Contractor's site superintendent and quality control manager.

.5 Monthly progress claims: The Contractor shall submit to the Departmental Representative all barge displacement sheets, truck scale tickets and manifests, and Certificates of Disposal, and any other required backup documentation, as part of the Contractor monthly progress claim.

1.6 References

.1 British Columbia Environmental Management Act (SBC 2003, Chapter 53).

.2 Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011.

1.7 Quality Control

.1 The Contractor is responsible for providing all necessary quality controls to successfully complete the work, and to comply with its Quality Control Plan, as specified in Section 01 45 00 (Quality Control).

.2 The Departmental Representative may, at the Departmental Representative's sole discretion, inspect the dredging, barge dewatering, and in-water transportation for the Departmental Representative's quality assurance purposes. Departmental Representative inspection shall in no way release the Contractor from its obligation to comply with the Specifications and all permits, and shall in no way be construed as acceptance of work.

1.8 Environmental Protection

.1 Dredging, barge dewatering, and in-water transportation activities shall be performed in accordance with environmental protection requirements, as stated in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), Section 01 35 43 (Environmental Procedures), the EMP, the Contractor's accepted Environmental Protection Plan (EPP), and in accordance with all applicable permits.

1.9 Regulatory Requirements

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

1.10 Floating Plant

.1 Dredges and other floating equipment to be employed on this work shall be of Canadian registry, make, or manufacture, or must receive a certificate of qualification from Industry Canada, Marine Directorate, and this certificate of qualification must be provided to the Departmental Representative within fifteen (15) working days following Contract Award.

.2 The Coasting Trade Act shall apply to all vessels utilized by the Contractor for the work.

1.11 Site Information

.1 Character of Materials:

.1 Subsurface investigations were performed to characterize the physical and chemical quality of the dredge material. Detailed results from geotechnical and chemical testing of the sediments are provided in the attached Appendices and Reference Documents.

.2 Surveys of seabed, debris, and structures adjacent to the dredging areas were conducted to assist the Contractor in evaluating the potential nature and extent of debris and structural condition of infrastructure adjacent to locations where dredging will be performed. Results of surveys and other additional relevant site information are provided in the attached Appendices and Reference Documents.

.3 Jet probe data were collected within and adjacent to the Work Site to assess for the presence of bedrock, riprap, or other hard materials within the Dredge Prism; these jet probe survey results are provided in Appendix C.

.4 The Contractor shall satisfy itself regarding the nature of materials present at the Work Site prior to Tender. The type of materials encountered at the 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 the Specifications, and if encountered, will not be considered as basis for claims due to differing Work Site conditions.

.5 The Contractor shall follow Chance Find Procedures, Archaeological during dredging activities, as detailed in Section 01 11 55 (General Instructions).

.2 Dredge Debris:

.1 Dredge Debris will be encountered during dredging operations. Some of this debris material may not be suitable for disposal at the permitted Disposal Facility with dredge material. The Contractor shall coordinate with the Disposal Facility to determine whether Dredge Debris needs to be screened out of the dredge material prior to upland transport and disposal. The Contractor shall provide all necessary debris removal screening, transport, and disposal, and the costs for this work shall be considered incidental to the work and included in the Tender price for DREDGING, IN-WATER TRANSPORTATION, AND OFFLOADING.

.2 Dredge Debris shall be disposed of at a permitted Disposal Facility and in accordance with applicable local, provincial, state, and federal regulations.

.3 The Contractor shall immediately notify the Departmental Representative if any Dredge Debris that is considered Hazardous Waste is encountered at

any time during dredging or subsequent handling, and the Departmental Representative will determine its disposition.

.3 Suspected UXO (During Dredging Operations):

.1 Suspected UXO may be encountered during dredging operations of an unknown quantity. Suspected UXO may consist of UXO, discarded military munitions, exploded ordnance, discarded military munitions, munitions scrap, small arms ammunition, and explosive residue. Others may refer to these items as duds, blinds, munitions, explosives of concern, or hazardous explosive ordnance.

.2 The Contractor shall provide UXO Qualified Personnel on an as needed basis to observe, identify, and assess whether Suspected UXO found during dredging is deemed safe or not safe to move in accordance with the Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual, provided in Appendix A.

.3 The UXO Qualified Personnel shall be on call for chance find call-outs in the event Suspected UXO are identified during dredging activities at the Work Site. If the Contractor encounters Suspected UXO during dredging operations, the Contractor shall immediately notify the Departmental Representative, and take safety precautions, to be described as part of the Contractor's Construction Work Plan and the Contractor's Health and Safety Plan.

.4 If the Departmental Representative or the UXO Qualified Personnel determines the item is unsafe to move, or is unable to determine if it is safe to move, the Departmental Representative may direct the Contractor to stop work, and will contact DND's Explosive Ordnance Disposal (EOD) Team to further assess and dispose of the Suspected UXO. Stand-by Time – In-Water will be paid for during the Departmental Representative directed stop work duration.

1.12 Misplaced Material

.1 Should the Contractor, during the execution of the work, lose, dump, throw overboard, sink, or misplace any material, dredge, barge, machinery, or appliance (collectively termed as misplaced materials), the Contractor shall promptly recover and remove the misplaced materials. The Contractor shall give immediate verbal notice, followed by written confirmation, of the description and location of such misplaced materials to the Departmental Representative and shall mark and buoy such misplaced materials until they are removed.

.2 Should the Contractor refuse, neglect, or delay compliance with this requirement, such misplaced materials may be removed by the Departmental Representative, in which case the cost of such removal operations shall be paid by the Contractor.

.3 The Contractor shall be responsible for any fees, fines, penalties, or other costs resulting from misplaced materials, and shall not pass costs to the Departmental Representative.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION

3.1 Sequencing

.1 Construction sequencing requirements are described in Section 01 11 55 (General Instructions). The Contractor shall conduct its dredging work according to those sequencing requirements in addition to the more detailed sequencing considerations associated with dredging, barge dewatering, and in-water transportation activities.

.2 Dredging, barge dewatering, and in-water transportation activities shall not begin until the Departmental Representative has completed review and accepted the Construction Work Plan.

.3 The Contractor shall select its means and methods to conduct its dredging work to stay within the Payable Overdredge Allowance limits to the extent practicable.

.4 Once Required Dredging activities are considered by the Contractor to be complete within a Zone, the Contractor shall conduct a Post-Construction Survey (for Required Dredging) over the Zone footprint to verify that Required Dredge Elevations or Targeted Cut Thickness have been met. If high spots remain above the Required Dredge Elevations or the Targeted Cut Thickness, with the exception of bedrock or till verified by the Departmental Representative, the Contractor shall remove such high spots to the satisfaction of the Departmental Representative and perform an updated Post-Construction Survey, at the Contractor's own cost.

.5 Once any remaining high spots are removed and an updated Post-Construction Survey is completed, the Contractor shall allow the Departmental Representative three (3) working days to review the Contractor's Post-Construction Survey and provide acceptance of the work as complete for Required Dredging in that Zone. The Departmental Representative-accepted Dredging Post-Construction Survey shall be used to compare against the Dredging Pre-Construction Survey for measurement and payment purposes for Required Dredging.

.6 After completing Required Dredging in that Zone, and acceptance of the Post-Construction Survey by the Departmental Representative, the Departmental Representative will conduct post-dredge confirmation sampling within that Zone.

.7 The Contractor shall plan for up to ten (10) working days of no site work within both the D Jetty East Zone and D Jetty North Zone and fifteen (15) work days within the F/G Jetty Zone, following acceptance of the Required Dredging Post-Construction Survey, for the Departmental Representative to conduct post-dredge

confirmation sampling, receive confirmation sampling results, and inform the Contractor whether Contingency Re-Dredging activities will be required. The Contractor is expected to develop the construction work schedule to account for this required downtime and utilize the existing equipment to perform work in other Zones during this downtime as allowed in the construction sequencing requirements described in Section 01 11 55 (General Instructions). The costs associated with this Contingency Re-Dredge Decision Duration shall be considered incidental to the work and included in the Tender price for DREDGING, IN-WATER TRANSPORTATION, AND OFFLOADING.

.8 During the Contingency Re-Dredge Decision Duration, the Contractor shall comply with the following requirements:

.1 If the Contractor elects to remove the Contractor's equipment from the Work Site during this period, the equipment shall be decontaminated prior to removal and obtain acceptance in writing from the Departmental Representative.

.2 The Contractor shall relocate the equipment to another location to provide access for the Departmental Representative to perform the post-dredge confirmational sampling.

.2 If the Contractor elects to keep their equipment at the Work Site during this period, the Contractor shall propose a temporary moorage location for the equipment to the Departmental Representative. The temporary moorage location must be reviewed and accepted by the Departmental Representative prior to mooring the equipment at that location.

.9 Following receipt of confirmation sampling results and evaluation of the data by the Departmental Representative, the Departmental Representative shall direct the Contractor to complete one of the following activities:

.1 Complete Contingency Re-Dredging within specified area(s) in the Zone to remove Dredge Residuals in locations directed by the Departmental Representative.

.2 Complete Contingency Re-Dredging within specified area(s) in the Zone to remove Missed Inventory in locations directed by the Departmental Representative.

.3 Conduct no additional dredging activities.

.10 Once Contingency Re-Dredging activities are considered by the Contractor to be complete within the Zone, the Contractor shall conduct a Post-Construction Survey (for Contingency Re-Dredging) over the Zone footprint to verify that required Contingency Re-Dredging activities are complete. If the Departmental Representative determines that Contingency Re-Dredging has not been completed, the Contractor shall complete Contingency Re-Dredging work to the satisfaction of the Departmental Representative and update the Post-Construction Survey at no additional expense to the Departmental Representative.

.11 Once Contingency Re-Dredging is accepted as complete within the Zone, the Departmental Representative may choose to collect additional samples of the dredge area. The Contractor shall provide the Departmental Representative access to collect these additional samples. For the purposes of this Tender, no additional Contingency Re-Dredging will be required based on this sampling and no additional Contingency Re-Dredge Decision Duration will apply.

.12 The Departmental Representative-accepted Contingency Re-Dredging Post-Construction Survey shall be used to compare against the accepted Required Dredging Post-Construction Survey for measurement and payment purposes to determine the payable volume for Contingency Re-Dredging.

3.2 Dredging

.1 The Contractor shall dredge the Dredge Units to the lines, grades, slopes, and elevations shown on the Drawings.

.2 The Contractor shall remove all material above the Required Dredge Elevation. The Contractor shall not directly remove material from outside of the Dredge Prism, except to make appropriate grades as displayed on the Drawings. The Contractor shall remove Slough Material that falls into the Dredge Prism at no additional cost to the Contract.

.3 The Contractor shall conduct dredging activities in slope areas starting from the top of slope and working down the slope toward the toe of slope. The Contractor shall take care to conduct dredging activities according to the requirements of the Drawings and Specifications, and in a manner that does not result in adverse impacts to the stability of the slopes or adjacent structures to remain.

.4 The Contractor shall adhere to the set-back requirements when performing dredging activities adjacent to the existing structures and as shown in detail on the Drawings. The Contractor shall ensure that their equipment does not come into contact or otherwise impact the anchoring system of the wave attenuating breakwater shown on the Drawings.

.5 The Contractor shall exercise great care when dredging the toe of slopes and slope grades to avoid overdredging below the Payable Overdredge Allowance. Undercutting the toe of slopes may result in excessive slope sloughing and damage to the existing structures. Any damage that occurs due to slope sloughing, or sloughing that has the potential to cause damage, caused by or attributed to Excessive Overdredging shall be repaired at the Contractor's cost.

.6 All dredging activities shall be performed from within a required silt curtain as described in the EMP, and Section 01 35 13.43 (Special Project Procedures for Contaminated Sites).

.7 The Contractor shall conduct mechanical dredging activities using a bucket type and size of the Contractor's choice, provided that water quality requirements of the EMP and permit conditions are met.

.8 All dredging activities shall be performed in accordance with the requirements of the Specifications and using the Best Management Practices (BMPs) presented in the Specifications and EMP to protect water quality during completion of the work. If water quality criteria exceedances are observed during implementation of dredging, barge dewatering, and in-water transportation activities, the Contractor may be required to modify its construction methods to achieve compliance, and at the Contractor's own cost.

.9 Dredging shall be undertaken in a manner to minimize disruption, disturbance, and resuspension of seabed sediments. The Contractor shall remove sediment and encountered Dredge Debris from the seabed in a slow and steady manner to minimize resuspension of sediments.

.10 Dredging work shall be undertaken in a manner to protect the existing underpier armoured slope at D Jetty (and its constituent materials) from damage or sloughing during the work, particularly adjacent to the D Jetty East Zone where the underpier slope contains riprap adjacent to the required dredge offset. The Contractor shall visually monitor and inspect the armoured slope under the east portion of D Jetty for movement, sloughing, or slope deterioration, on a daily basis during Required Dredging work in the D Jetty East Zone. If the Contractor, Departmental Representative, or Departmental Representative's inspectors observe any slope movement, the Contractor shall immediately stop work at that location and work with Departmental Representative to determine next steps, which may include changing the Contractor's operations or providing for additional setback. If the slope movement is determined by the Departmental Representative to be caused by Excessive Dredging, the Contractor shall repair the damage at their own cost.

.11 The Contractor shall conduct its vessel operations in a manner to limit the risk of recontamination resulting from the resuspension of sediment by operating at reduced power during vessel movement activities to the maximum extent practicable.

.12 The Contractor shall place dredge material and Dredge Debris into the transport barge in such a manner that prevents loss of sediment or effluent over the side rails and prevents barge listing.

.13 Leveling of the completed dredging surface by dragging a beam, the clamshell bucket, or other Contractor equipment over the completed area is not permitted.

.14 If daily Progress Survey results indicate that the Contractor is dredging excessively, or is dredging outside of the Dredge Prism, the Contractor shall modify its dredging operations and/or positioning control immediately to avoid additional Excessive Dredging.

.15 The Contractor shall perform Slope Dredging to construct Side Slopes adjacent to the Zone boundaries, as shown on the Drawings. Slope Dredging for Side Slopes shall be performed using a grade no steeper than 2 horizontal to 1 vertical (2H:1V) unless shown otherwise on the Drawings. All Slough Material within

the Dredge Prism generated from Slope Dredging of Side Slopes shall be removed by the Contractor prior to completion of the work.

.16 Before accepting the dredging work as complete in the D Jetty North Zone, the Contractor shall complete at least one dredging cleanup pass along the north jetty fender line within DU5, after all other Required Dredging has been completed in that Zone, and before acceptance of the Zone by the Departmental Representative, to remove any Slough Material that may have moved downslope during the Required Dredging, or as accepted by the Departmental Representative in writing.

3.3 Contingency Re-Dredging

.1 After review of the post-dredge confirmational sampling and testing results, the Departmental Representative may direct the Contractor to conduct Contingency Re-Dredging in specified area(s) to remove Dredge Residuals or Missed Inventory. This work is referred to as Contingency Re-Dredging.

.2 The Contractor shall re-occupy the specified area(s), as directed by the Departmental Representative, and dredge to the horizontal and vertical limits (including Payable Overdredge Allowances and tolerances) specified for Dredge Residuals or Missed Inventory removal.

3.4 Barge Dewatering

.1 The Contractor shall provide detailed description, photographs, and drawings as necessary describing the means and methods for dredge material dewatering as part of the Construction Work Plan.

.2 Passive barge dewatering shall be permitted within the boundaries of each Zone, with the exception of DU4 and DU5 in the D Jetty North Zone, as shown on the Drawings. Passive barge dewatering is not permitted outside the boundaries of the Zones.

.3 Passive dewatering barges consists of drainage of dredge water (i.e., effluent) back into the Zone waters passing through filter media (such as filter fabric). All effluent from passive barge dewatering shall pass through filter fabric material prior to discharge from a passive dewatering barge such that no suspended solids are returned to the Zone waters.

.4 The Contractor shall be responsible for ensuring that all scuppers, sideboards, or other passageways for effluent to discharge back to the Zone waters have the proper filtration material in place prior to discharge of effluent.

.5 Passive dewatering activities within the Dredge Units (excluding DU4 and DU5) shall be completed using the procedures described in the Specifications, and the requirements and BMPs presented in the Specifications, and the EMP. If water quality criteria exceedances are observed during completion of passive dewatering activities, the Contractor shall modify the passive barge dewatering process or cease passive barge dewatering activities at the Contractor's own cost.

.6 Where watertight haul barges are to be used (including DU4 and DU5), the Contractor shall identify, in the Construction Work Plan, the location, method of treatment, and point of discharge for all dredge effluent collected on the watertight barges. No effluent that is collected or transported off of the Work Site shall be returned to the Work Site for discharging.

.7 No overtopping of the barge sideboards will be allowed.

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

3.5 In-Water Transportation

.1 All dredge materials, Dredge Debris, and Suspected UXO, shall be transported from the Work Site using waterborne equipment (i.e., barges). No passive barge dewatering is allowed during in-water transportation; therefore, the haul barge must be made watertight prior to in-water transportation to the Contractor's Off-Site Offload Facility.

.2 Watertight barges shall have fixed permanent containment walls on all four sides, and be sealed prior to in-water transportation off site to prevent effluent and sediment discharge during in-water transportation off site. Three sided barges using a temporary wall/fencing on the fourth side may be acceptable for use as long as the Contractor can demonstrate to the Departmental Representative's satisfaction that the barge configuration will hold water and sediment without any leakage from the temporary wall, and be stable and safe to transport a full load of sediment and effluent without spilling or leaking during transport. The Contractor shall not transport any barge off site that has observable leaks, minimal freeboard (i.e., less than 2 feet), or appears to be listing or potentially unstable in the weather and sea state conditions during transport.

.3 The Contractor shall transport dredge material, Dredge Debris, and Suspected UXO to the Contractor Off-Site Offload Facility according to the means and methods described in the Contractor's Construction Work Plan. Deviations from the Construction Work Plan must be submitted to the Departmental Representative for review (and re-submission and further review as required), and no haul barges shall leave the Work Site until the Departmental Representative has accepted such deviations.

.4 The Contractor shall have a certified marine surveyor, or an individual that the certified marine surveyor has designated as qualified, to inspect each barge load of dredge material and Dredge Debris prior to transport from the Work Site to the Contractor Off-Site Offload Facility to assess whether the barge is properly loaded, is seaworthy, and has no observable stability issues such as evidenced by barge listing.

.1 Documentation of such certification shall be provided to the Departmental Representative prior to that barge leaving the Work Site.

.2 Documentation of such certification shall be included in the Contractor's Daily Construction Report.

.3 The certified marine surveyor, or his/her designee, shall obtain barge displacement measurements upon arrival to the Work Site when the barge is empty and prior to in-water transportation, and establish an estimated tonnage of material associated with that barge load. Estimated tonnages for each barge load of material removed from the Work Site shall be recorded in the Contractor's Daily and Weekly Construction Reports.

.5 The Contractor shall be responsible for supplying an updated marine certification for any vessel requiring repair during the project.

.6 Dredge material, Dredge Debris, and Suspected UXO shall be transported directly from the Work Site to the Contractor Off-Site Offload Facility identified in the Construction Work Plan, and as accepted by the Departmental Representative.

.7 Transportation of dredge material, Dredge Debris and Suspected UXO to the Contractor Off-Site Offload Facility shall comply with federal, provincial, and local regulations, permit conditions, and all requirements of the Specifications and the EMP regarding these activities.

.8 Water management on haul barges, or other forms of waterborne transport, may be done with the addition of drying amendment if desired by the Contractor. The Contractor shall select the type of amendment and appropriate dosage to facilitate dewatering. Use of amendments is at the sole discretion of the Contractor and will be considered incidental for the purposes of payment, and the Contractor is responsible for ensuring that use of amendments is acceptable by the Disposal Facility, and meets requirements of federal, provincial and local regulations, permit conditions, and the EMP.

3.6 Water Quality Criteria Compliance

.1 The water quality monitoring requirements are described in the Specifications and the EMP.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 The Contractor shall provide a Contractor Off-Site Offload Facility to be used to transfer materials between the Contractor's floating equipment and land, including offloading the Contractor's haul barges of dredge material, Dredge Debris, Demolition Debris, and Suspected Unexploded Explosive Ordnance (UXO). The Contractor Off-Site Offload Facility shall be operated in compliance with all Laws and Regulations and have in place all necessary federal, provincial or state, and local permits and approvals for work activities anticipated to occur at the Contractor Off-Site Offload Facility. The Contractor shall have in place ownership or lease documentation to demonstrate that the activities to be conducted at the Contractor's Off-Site Offload Facility are allowed or accepted by the property owner and shall provide the documentation to the Departmental Representative as part of the Construction Work Plan.

.2 The Contractor shall provide a Processing Facility to segregate out all Suspected UXO from the dredge material (excluding Dredge Debris and Demolition Debris). The Processing Facility shall be located as described in Section 01 11 55 (General Instructions). The Contractor shall design its Processing Facility to be capable of segregating out all Suspected UXO through Contractor's selected means and methods (e.g., screening, magnetic sorting, hydraulic sorting) and provide sufficiently high production rate in order to meet the required completion dates for the work.

.3 The Processing Facility shall have adequate storage capacity to allow the dredging and other in-water work to be completed by the Substantial Completion Date. The Processing Facility storage shall act as a buffer to allow the Contractor the ability to keep conducting in-water remedial activities (e.g., dredging, Backfill Material placement, structure reinstatement) even if the Processing Facility is on Stand-by Time – Material Processing, or does not segregate dredge material at the rate that can keep pace with the in-water work.

.4 In order for Canada to respond to Suspected UXO items deemed unsafe to move from the Work Site, or to collect Suspected UXO items temporarily stored at the Processing Facility in a timely fashion, the Contractor's Off-Site Offload Facility and Processing Facility must be located within the area of responsibility for DND's Explosive Ordnance Disposal (EOD) Team based at the Fleet Diving Unit (Pacific). As such, the Contractor Off-Site Offload Facility and the Processing Facility must be located on southern Vancouver Island (i.e., south of Parksville), as shown on the Drawings. If the Contractor elects to transport the dredge material to the Contractor Off-Site Offload Facility after segregating Suspected UXO on a barge within the Work Site, then the Contractor Off-Site Offload Facility would not be required to be within the boundary described in this clause.

.5 The Contractor shall provide a magazine at the Processing Facility that complies with the Explosives Regulations, 2013 (e.g., the magazine is well ventilated and resistant to theft, weather, and fire) and is licensed by Natural Resources Canada (NRCAN) to temporarily store all Suspected UXOs found at the Work Site and Processing Facility that have been deemed safe to move by UXO Qualified Personnel. All Suspected UXO will be collected by DND from the magazine on a regular basis for disposal. Provide safe access for DND personnel to remove Suspected UXO.

.6 All Suspected UXOs are the property of Canada.

.7 No Suspected UXOs are permitted to be disposed of at a soil or debris Disposal Facility. The Contractor shall segregate all safe-to-move Suspected UXO from the dredge material at the Processing Facility, in accordance with the DND's Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011 (attached to these Specifications in Appendix A) and in accordance with the site-specific means and methods presented in the Contractor's Construction Work Plan and the Contractor's Health and Safety Plan, as reviewed and accepted by the Departmental Representative.

.8 Work under this section to be performed by the Contractor includes furnishing of all labour, equipment, materials, and other incidentals required for set up and operations of the Contractor Off-Site Offload Facility and Processing Facility; haul barge offloading of dredge material, Dredge Debris, Demolition Debris, and Suspected UXO at the Contractor's Off-Site Offload Facility to the Contractor's Off-Site Staging and Stockpile Area; Off-Site Staging and Stockpile Area management; sediment dewatering and water management (if applicable); treatment (if applicable); contaminated sediment re-handling; upland transportation; and off-site disposal of material at the Disposal Facility. In addition processing of dredge material will occur at a Processing Facility located either on a barge within the Work Site (prior to transport to the Contractor Off-Site Offload Facility) or at an upland location that has been reviewed and accepted by the Departmental Representative.

.9 For the purposes of Tender, the Contractor shall assume that all dredge material, Dredge Debris, and Demolition Debris (excluding Suspected UXO) will require disposal at a Disposal Facility according to the British Columbia Contaminated Sites Regulation (CSR) industrial land use standards (i.e., Waste Quality or IL+ waste). IL+ material is to be transported by a hauler licensed within the Province of British Columbia (or the equivalent state requirements if material is hauled in the United States) to haul such waste in accordance with Laws and Regulations.

.10 No material designated for removal from the Work Site has been identified as hazardous waste. If hazardous waste is found during dredging and in-water transport operations, prior to any processing and/or treatment (i.e., during bulk handling phase of dredging) the Contractor shall notify the Departmental Representative. Canada will be responsible for additional costs associated with

the hazardous waste. If hazardous waste is identified during or after material processing or treatment of the dredge material, the Contractor is solely responsible for proper handling, transport, treatment, and disposal of hazardous waste materials at no extra cost to Contract.

.11 Treatment or additional processing of dredge material, Dredge Debris, or Demolition Debris (in addition to segregation of Suspected UXO from dredge material) to potentially reduce the level of contamination or to segregate out cleaner materials is allowed, but is not required as part of this Contract. If treatment or additional processing activities are to be completed as part of this Contract, the Contractor shall provide to the Departmental Representative (as part of the Construction Work Plan) a proposal describing the means and methods by which treatment or additional processing activities will be completed. This proposal must be reviewed and accepted by the Departmental Representative prior to conducting treatment or additional processing activities as part of this Contract.

.1 Notwithstanding treatment or additional processing, all dredge material, Dredge Debris, and Demolition Debris must be disposed of at a Disposal Facility.

.2 The Treatment and Processing Facilities shall provide adequate stockpile space to allow for holding material in discrete cells or batches while analytical testing is being conducted by the Contractor and pending written acceptance by the Departmental Representative.

.12 The Contractor may choose to conduct additional testing or treatment, at the Contractor's own cost, to re-classify the dredge material and obtain acceptance from the Disposal Facility to dispose of dredge material at a lower disposal threshold than CSR industrial IL+ waste. The Contractor shall conduct any proposed re-classification in accordance with Laws and Regulations, including British Columbia Ministry of Environment Technical Guidance No. 1 and 2, and shall still be required to dispose of appropriate material at a Disposal Facility. All analytical documentation of this additional testing shall be provided to and accepted by the Departmental Representative prior to material leaving the Treatment or Processing Facility.

.13 The Contractor may propose to transport and dispose of the dredge material (with Suspected UXO segregated out), Dredge Debris, and Demolition Debris at a U.S. Disposal Facility that has been certified to be able to accept the material. All permits and approvals for transit and entry to the United States shall be the responsibility of the Contractor. The Departmental Representative anticipates that the lowest classification landfill in the United States that could accept this material is a Subtitle "D" Landfill, as regulated under the Resource Conservation and Recovery Act (RCRA) Subtitle D regulation for the management of non-hazardous solid waste. However, it is solely the Contractor's responsibility to determine whether disposal using a U.S.-located Disposal Facility is legal, and to determine the appropriate level of Disposal Facility that can legally accept the material. Should the Contractor propose transporting and disposing of the dredge

material, Dredge Debris, and Demolition Debris at a U.S. Disposal Facility, the Contractor shall submit as part of its Tender, all necessary U.S. regulatory approvals (e.g., U.S. Environmental Protection Agency [EPA] approval) and subsequent state approvals (e.g., Washington State Department of Ecology for Washington State landfills), Disposal Facility certifications that they will accept this material, and any required export documentation, including satisfying Canadian Environmental Protection Act (CEPA) and Canada Border Services Agency (CBSA) customs, regulations, and/or procedures, as well as any required U.S. Border Patrol customs, regulations, and/or procedures.

.14 Treatment activities shall be performed at a Treatment Facility. The Contractor shall not conduct treatment activities at the Contractor Off-Site Offload Facility unless documentation can be provided that the facility is an existing, permitted Treatment Facility.

.15 The Departmental Representative reserves the right to inspect all off-site Contractor facilities, including collection of sediment samples for characterization and assessment purposes.

.16 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 transport, with the exception of Suspected UXO, ionizing radiation items, or archaeologically significant items, which remain the property of Canada. Ionizing radiation or similar items are not anticipated but if encountered, the Contractor shall immediately notify the Departmental Representative to coordinate their handling.

.17 The Contractor shall complete final disposal of all dredge material (with Suspected UXO segregated out), Dredge Debris, and Demolition Debris, and shall submit its Certificate of Disposal to the Departmental Representative on a monthly basis and after the Departmental Representative has accepted that all dredging work is complete. The Contractor shall not move dredge material, Dredge Debris, or Demolition Debris from one Disposal Facility to another Disposal Facility once the Contractor submits the Certificate of Disposal.

.18 Offloading, material processing, upland transportation, and disposal activities shall not begin until the Departmental Representative has reviewed and accepted the Contractor's Construction Work Plan.

1.2 Measurement and Payment Procedures

.1 Measurement for OFFLOADING AND UPLAND TRANSPORTATION; MATERIAL PROCESSING; and DISPOSAL shall be the Dredge Pay Volume. The Dredge Pay Volume will be determined by calculating the total amount of in-situ cubic metres (m^3) of material dredged (based on Dredging Pre-Construction and Dredging Post-Construction Surveys), minus Excessive Dredging. Final measurement for offloading, upland transportation, and disposal shall be by the payable in situ cubic metre (m^3), based on comparison of the Contractor's Dredging Pre-Construction and Dredging Post-Construction Surveys.

.2 Payment for offloading of dredge material, Dredge Debris, and Suspected UXO; temporary stockpiling; dewatering (if applicable); treatment (if applicable); upland handling of dredge material, Dredge Debris and Demolition Debris; loading into trucks or railcars in preparation for upland transportation to the Disposal Facility; upland transportation to the Disposal Facility; and other incidental work, will be made using the Dredge Pay Volume estimates, under the price tendered for OFFLOADING AND UPLAND TRANSPORTATION. Payment for the work will be made on a monthly basis using the monthly estimated Dredge Pay Volume submitted by the Contractor and accepted by the Departmental Representative.

.3 Payment for segregation of Suspected UXO from the dredge material at the Processing Facility, including ancillary costs, will be made using the Dredge Pay Volume estimates, under the price tendered for MATERIAL PROCESSING. Ancillary costs include, but are not limited to, providing the UXO Qualified Personnel and Archaeological Monitor for full-time monitoring at the Processing Facility and to respond to chance finds (for both Suspected UXO and archaeologically significant items) during dredging and transportation operations, management of the required magazine to temporarily contain the Suspected UXOs deemed safe to move, and management of the required covered area for temporary storage of archaeologically significant items.

.4 Payment for disposal of dredge material and Dredge Debris at the Disposal Facility will be made using the Dredge Pay Volume estimates, under the price tendered for DISPOSAL. Payment for the work will be made when the Contractor provides the Certificate of Disposal from the Disposal Facility. Certificates of Disposal will be reported as a tonnage measurement. Therefore, the measurement for tonnage certified to have been disposed of shall be converted to a Dredge Pay Volume (in situ cubic metres) for progress payment purposes.

.5 All costs associated with offloading, upland transportation, and disposal of Dredge Debris shall be considered incidental to the work and shall be included as applicable under the prices tendered for OFFLOADING AND UPLAND TRANSPORTATION; MATERIAL PROCESSING; and DISPOSAL.

.6 All costs associated with offloading, upland transportation, and disposal of Demolition Debris are explained in Section 02 41 13 (Selective Site Demolition) and Section 02 41 16.01 (Structure Demolition) and are not included in the prices tendered for OFFLOADING AND UPLAND TRANSPORTATION; MATERIAL PROCESSING; and DISPOSAL.

.7 The disposal of unwanted historical items shall be considered incidental to the work and shall be included under the price tendered for DISPOSAL.

.8 Unit pricing for OFFLOADING AND UPLAND TRANSPORTATION; MATERIAL PROCESSING; and DISPOSAL will not be adjusted for any reason except for finding confirmed hazardous waste during dredging activities. There will be no adjustment to the unit price if the Contractor elects to process or treat

dredge material to try to reclassify the material from its IL+ designation, and is unable to obtain Disposal Facility approval and must dispose of the material at a different disposal cost than they tender. All reclassification of dredge material shall be accepted by the Departmental Representative.

.9 Final payment will be based on the final measurement of Dredge Pay Volumes. Final payment shall be reconciled with previous monthly progress payments to determine the amount of final payment.

1.3 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

.3 Section 01 35 13.43 (Special Project Procedures for Contaminated Sites)

.4 Section 01 35 43 (Environmental Procedures)

.5 Section 01 45 00 (Quality Control)

.6 Section 35 20 23 (Remedial Dredging, Barge Dewatering and In-Water Transportation)

1.4 Definitions

.1 See Section 01 11 55 (General Instructions) for all definitions associated with these Contract documents.

1.5 Submittals

.1 The Contractor shall submit with its Tender all documentation and permits associated with facilities proposed for off-site disposal of non-hazardous materials in compliance with applicable disposal regulations. Include copies of permits for the Disposal Facility and include names, locations, and telephone numbers of all proposed facilities and transporters.

.2 The Contractor shall submit a detailed Construction Work Plan in accordance with Section 01 33 00 (Submittal Procedures) within fifteen (15) working days following Contract Award for review and acceptance by the Departmental Representative.

.3 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 will be implemented for offloading, material processing, upland transportation, and disposal activities. Offloading, upland transportation, and disposal activities shall not begin until: 1) the Construction Work Plan has been reviewed and accepted by the Departmental Representative; and 2) agency- and public-required Notifications and review have been

completed. At a minimum, the offloading, upland transportation and disposal approach description shall contain the following information:

.1 Contractor Off-Site Offload Facility location, and copies of federal, provincial, state (as applicable), and local permits and approvals for operation of the facility.

.2 Contractor Off-Site Offload Facility layout, as described in Section 01 35 13 43 (Special Project Procedures for Contaminated Sites).

.3 Reference to the construction work schedule that identifies timing and sequencing for completion of offloading, upland transportation, and disposal activities, as they relate to other major elements of the work.

.4 Order and sequence in which the work is to be performed, including a description of equipment to be used and methods of operation.

.5 Proposed hours of operation for the Contractor Off-Site Offload Facility and associated activities.

.6 Methods and procedures for offloading, upland transportation, treatment (if applicable), and disposal activities, including means and methods for providing environmental protection as described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites) and Section 01 35 43 (Environmental Procedures). Specifically, the Contractor shall provide, at a minimum, the following information as part of the Construction Work Plan:

.1 Methods, procedures, and equipment to be used for all dredge material, Dredge Debris, Demolition Debris, and dredge water (effluent) offloading from the in-water transportation barge.

.2 Spill prevention measures during barge offloading.

.3 Water management methods.

.4 Methods, procedures, and controls to be used to segregate, handle, store, transport, and dispose of dredge material, Dredge Debris, and Demolition Debris to the appropriate Disposal Facility, in accordance with applicable guidelines, protocols, procedures, and regulations.

.5 Location of Treatment Facility (if treatment activities are to be completed), and copies of permits, certificates, and approvals for operation of the facility.

.6 Methods, procedures, and equipment to be used for treating material (as applicable), including procedures for meeting federal, provincial, and local regulations including preventing release of water, dust, and sediment during treatment.

.7 Methods, procedures, and equipment to be used for loading and upland transport of dredge material, Dredge Debris, and

Demolition Debris to the Disposal Facility, including procedures for meeting federal, provincial, state (as applicable), and local regulations including preventing release of water, dust, and sediment during transportation.

.8 Methods of transportation to be used, and methods employed to ensure safe transportation of the materials from the Contractor Off-Site Offload Facility to the Treatment Facility (if applicable) and the Disposal Facility.

.7 Methods and procedures for offloading, segregating and storing Suspected UXO. This portion of the Construction Work Plan shall satisfy the requirements identified in Annex C to Chapter 3 of DND's Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011. Specifically, the Contractor shall provide, at a minimum, the following information as part of the Construction Work Plan:

.1 Location of Processing Facility and layout, as required in Section 01 35 13 43 (Special Project Procedures for Contaminated Sites).

.2 Copies of permits, certificates, and approvals for operation of the Processing Facility.

.3 Procedures and protocols for coordinating with the Departmental Representative the disposal of Suspected UXOs by DND.

.4 An operating plan identifying facility process, resulting output streams, and end point for all streams, including but not limited to, disposal options. The intent is to have the Processing Facility operate within the guidelines of the British Columbia Contaminated Sites Regulation (BC CSR).

.5 Methods, procedures, and equipment to be used for segregating Suspected UXO, including procedures for meeting federal, provincial, and local regulations related to the handling, storage, transportation, and disposition of explosives. The portion of the Contractor's Construction Work Plan that addresses Suspected UXO encountered during the project shall satisfy the requirements listed in Annex C to Chapter 3 of DND's Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011 and shall include at a minimum:

.1 Key UXO Qualified Personnel Roles and Responsibilities

.2 A preliminary summary of risks associated with Suspected UXO related activities (including dredging, barging, offloading, transporting, processing, and storage) at the Contractor's barge, Contractor Off-Site Offload Facility,

Processing Facility, and Disposal Facility. The summary shall also document the Contractor's measures to control the identified risks.

.3 The Contractor's proposed communication and reporting related to Suspected UXO, as outlined in the Specifications.

.4 Documentation and records related to Suspected UXO, including a daily catalogue of Suspected UXO items and representative photographs.

.5 Site-specific training for all contractor personnel, subcontractors, and visitors to the Work Site.

.6 Security related to the temporary storage of Suspected UXO, including during down times and after hours, in accordance with the Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011.

.7 Excavation procedures related to Suspected UXO.

.8 Segregation procedures related to Suspected UXO.

.9 Temporary storage procedures related to Suspected UXO, in accordance with the Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011.

.10 Siting plan for the screening and temporary storage of Suspected UXO.

.11 Quality control related to Suspected UXO.

.8 Best Management Practices (BMPs) proposed by the Contractor 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) and Section 01 35 43 (Environmental Procedures) during completion of offloading, upland transportation, material processing, treatment (if applicable), and disposal activities.

.4 As part of the Daily Construction Report, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall provide to the Departmental Representative a daily record of offloading, material processing, upland transportation, treatment (if applicable), and disposal activities, including the estimated quantity of dredge material, Dredge Debris, and Demolition Debris offloaded at the Contractor Off-Site Offload Facility (including barge displacement measurements of full and empty barges), truck or rail car weight measurements for material sent off site for disposal at the Disposal Facility, quantity processed at the Processing Facility, quantity treated at the Treatment Facility (if applicable), certified weight tickets from the Disposal Facility, and a

summary of other details of the work. The Daily Construction Report shall include a daily summary (e.g., number, type, and disposition) of all Suspected UXOs observed, found, or handled. Provide photographic documentation. The Daily Construction Report shall be submitted to the Departmental Representative the morning following completion of the work for that day. The Daily Construction Report shall be signed by the Contractor's site superintendent and quality control manager.

.5 Weekly Reporting: As part of the Contractor's Weekly Construction Report, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall summarize the week's work for offloading, upland transportation, and disposal activities. The Weekly Construction Report shall also identify anticipated work to be completed in the present week, and present the latest barge displacement measurements and estimated weight tonnages for material sent off site for disposal at the Disposal Facility, material processing at the Processing Facility, or treatment at the Treatment Facility. The Weekly Construction Report shall include a weekly summary (e.g., number, type, photographs, and disposition) of all Suspected UXOs observed, found, or handled. The Weekly Construction Report shall be signed by the Contractor's site superintendent and quality control manager.

.6 The Contractor shall submit to the Departmental Representative all test results with each waste stream from the Processing Facility, including any water generated or accumulated as part of material processing, prior to transporting any material from the Processing Facility.

.7 If the Contractor elects to utilize treatment, 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 dredge material. The Contractor shall submit Certificates of Treatment for all material that is treated off site on a monthly basis and after the Departmental Representative has accepted that all dredging work has been completed.

.8 The Contractor shall submit to the Departmental Representative copies of all Certificates of Disposal to account for and demonstrate the disposal of all material dredged in relation to Section 35 20 23 (Remedial Dredging, Barge Dewatering and In-Water Transportation). The Certificates of Disposal must be from the final resting place of the material and must be provided for all material disposed off site. Certificates of Disposal shall be submitted on a monthly basis and after the Departmental Representative has accepted that all dredging work has been completed. The Contractor will also provide a guarantee from the Disposal Facility that all material will not be relocated upon placement at the Disposal Facility.

.9 The Contractor shall submit to the Departmental Representative copies of all manifests, weight tickets, and other documentation to demonstrate and track the final disposition of the dredge sediment, Dredge Debris, and Demolition Debris at

a Disposal Facility. The documentation shall track the material from the point of leaving the Work Site to final disposal at the Disposal Facility.

.10 The Contractor shall submit empty barge displacement measurements when a barge arrives on site and full displacement measurements before a barge leaves site, along with the corresponding tonnage of material in each barge. This information shall be included as part of the Contractor's Daily Construction Report.

1.6 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.

.3 *British Columbia Environmental Management Act* – Hazardous Waste Regulation, BC Reg 63/88.

.4 *British Columbia Environmental Management Act* – Contaminated Sites Regulation, BC Reg. 343/2008.

.5 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Off-Site Policy (40 CFR 300.440), Procedures for Planning and Implementing Off-Site Response Actions – United States Environmental Protection Agency.

.6 Resource Conservation and Recovery Act (RCRA) Subchapter III – Hazardous Waste (40 CFR Parts 239 - 282) – United States Environmental Protection Agency.

.7 Draft Range Clearance and Unexploded Explosive Ordnance (UXO) Activities Manual B-GL-381-003/TS-000 dated 12 April 2011.

.8 *Explosives Act* – Explosives Regulation 2013.

1.7 Contractor Quality Control

.1 The Contractor is responsible for providing all necessary quality controls to successfully complete the work, and to comply with its Quality Control Plan, as specified in Section 01 45 00 (Quality Control).

.2 The Departmental Representative may, at the Departmental Representative's sole discretion, periodically inspect the offloading, upland transportation, material processing, and disposal operations (and treatment operation as applicable) to verify compliance with the Contract documents and all applicable permits.

1.8 Environmental Protection

.1 Offloading, material processing, upland transportation, 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), the EMP, the Environmental Protection Plan, and in accordance with the project permits.

1.9 Regulatory Requirements

.1 Material transported by barge requires that the Contractor obtain an authorization from the Queen's Harbour Master (QHM) pursuant to the Canada Marine Act.

.2 The Contractor shall ensure that dredge material and debris offloading, handling, dewatering, Suspected UXO segregation, upland transport, processing and/or treatment (as applicable), and disposal is performed in compliance with federal, provincial or state, and local Laws and Regulations including, but not limited to, the references cited within the Specifications.

1.10 Location, Permitting, and Tracking

.1 The Contractor shall provide, as part of its Construction Work Plan, the locations of all proposed Offloading, Processing, Treatment (if applicable), and Disposal Facilities.

.2 For Disposal Facility, Processing Facility, and Treatment Facility (if applicable) proposed by the Contractor, the Contractor shall provide the following information as part of its Construction Work Plan:

.1 Location and owner of proposed Disposal Facility, Processing Facility, and Treatment Facility.

.2 Documentation that proposed Disposal Facility, Processing Facility, and Treatment Facility is licensed and suitable for acceptance, treatment, and disposal of the dredge material, Dredge Debris, and Demolition Debris.

.3 Methods for material processing and/or treatment, as applicable.

.4 Type of disposal, material processing, and/or treatment documentation to be provided by the Disposal Facility, Processing Facility, and Treatment Facility.

.3 No Disposal Facility or Treatment Facility shall be created for the specific use of this Contract. Only an existing Disposal Facility or Treatment Facility can be used.

.4 All dredge material, Dredge Debris, and Demolition Debris must be disposed of at the off-site Disposal Facility identified by the Contractor and accepted by the Departmental Representative. If the proposed Disposal Facility is not acceptable to the Departmental Representative, the Disposal Facility is not able to accept the material, or the material cannot be transported to the Disposal Facility, the Contractor must identify an alternate off-site Disposal Facility that is acceptable to the Departmental Representative, and must use the accepted Disposal Facility for disposal at no extra cost to Contract.

.5 All dredge material must be processed to remove Suspected UXO at the Processing Facility identified by the Contractor and accepted by the Departmental Representative. If the proposed Processing Facility is not acceptable to the Departmental Representative, the Processing Facility is not able to accept the material, or the Contractor's Processing Facility is unable to fully segregate Suspected UXO, the Contractor must identify an alternate Processing Facility that is acceptable to the Departmental Representative, and must use the new Processing Facility for Suspected UXO segregation at no extra cost to the Contract.

1.11 Inspection of Facilities

.1 The Departmental Representative or designee may inspect the Contractor Off-Site Offload Facility (including Off-Site Staging and Stockpile Areas), Processing Facility, Treatment Facility, Disposal Facility, and any additional sediment transfer facilities, proposed by the Contractor prior to the start of construction, and at any time during completion of offloading, upland transportation, and disposal activities to ensure that all facilities meet the requirements of the Specifications.

.2 The Contractor shall provide access to the Departmental Representative or designee to inspect the facility, including providing health and safety orientation and access to machinery to facilitate sampling, assessment, and documentation.

1.12 Misplaced Material

.1 The Contractor shall assume liability for misplacement of all dredge material (including Dredge Debris, Demolition Debris, and Suspected UXO) generated as part of this Contract at the point of loading the material into the Contractor's barge(s) at the Work Site. As such, the Contractor shall assume liability for misplacement of dredge material, and will be required to notify and coordinate with appropriate authorities if material is misplaced during transport to the Contractor Off-Site Offload Facility or during completion of offloading, transport, and disposal activities.

.2 Should the Contractor refuse, neglect, or delay compliance with this requirement, such misplaced materials may be removed by the Departmental Representative, in which case the cost of such removal operations shall be paid by the Contractor.

.3 The Contractor shall be responsible for any fees, fines, penalties, or other costs resulting from misplaced materials and shall not pass costs to Canada.

2. PART 2 – PRODUCTS – NOT USED

3. PART 3 – EXECUTION

3.1 Suspected UXO Monitoring

.1 The Contractor shall provide UXO Qualified Personnel to conduct full-time monitoring at the Processing Facility for identification of Suspected UXO during all Suspected UXO segregation activities. The Contractor's UXO Qualified Personnel shall also be available to respond to chance finds of Suspected UXO at the Work Site during remedial dredging and other in-water activities. This work is considered incidental to the segregation of Suspected UXO and Contractor shall include these costs under the MATERIAL PROCESSING Tender Price.

.2 The Contractor shall immediately notify the Departmental Representative upon discovery of Suspected UXO that are deemed unsafe to move by the UXO Qualified Personnel, either at the Work Site or at the Processing Facility. The Contractor shall not handle any Suspected UXO that the UXO Qualified Personnel has deemed unsafe to move.

.3 If Suspected UXO is discovered on DND property, and the item is deemed unsafe to move by the UXO Qualified Personnel, the Departmental Representative will call in DND's EOD team to handle the item in accordance with DND procedures.

.4 If Suspected UXO has been transported off of DND property and is deemed unsafe to handle by the UXO Qualified Personnel, the Contractor shall call 911, and notify the Departmental Representative.

.5 If the discovered Suspected UXO is deemed unsafe to move by the UXO Qualified Personnel, and the Contractor is unable to continue working due to the Suspected UXO, the Departmental Representative will direct work to stop, and the applicable Stand-by Time – Material Processing rate will be paid.

3.2 Archaeological Monitoring

.1 The Contractor shall provide an Archaeological Monitor to conduct full-time monitoring at the Processing Facility to retain structures, sites, or things that may be valued for their historical, archaeological, architectural, and paleontological significance. The Archaeological Monitor shall also be available to respond to potentially archaeologically significant items at the Work Site during remedial dredging and other in-water activities, as described in the Chance Find Procedures, Archaeological definition in Section 01 11 55 (General Instructions). This work is considered incidental to the segregation of Suspected UXO and the Contractor shall include these costs under the MATERIAL PROCESSING Tender Price.

.2 The Contractor shall immediately notify the Departmental Representative upon discovery of archaeologically significant items.

.3 The Departmental Representative will coordinate response to the discovery. If the Departmental Representative directs work to stop, Stand-by Time – Material Processing will be paid.

3.3 Offloading

.1 The Contractor shall employ all BMPs as described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), Section 01 35 43 (Environmental Procedures), the EMP, and included in the permits when performing offloading activities.

.2 The Contractor shall offload in-water transportation barges at the Contractor Off-Site Offload Facility in a manner that prevents spillage of dredge material, Dredge Debris, Demolition Debris, or effluent to the water. A spill apron (or equivalent spill prevention measure) shall be used during all offloading activities.

.3 No dredge material, Dredge Debris, Demolition Debris, or water transfer can begin at the Contractor Off-Site Offload Facility until the spill prevention measures are reviewed by the Departmental Representative and determined to be in place.

.4 Any spillage on the spill apron shall be removed as soon as practicable and properly disposed. Any such spillage outside of the Off-Site Staging and Stockpile Area shall be promptly cleaned up.

.5 It is the Contractor's responsibility to determine the structural capacity of the Contractor Off-Site Offload Facility that is proposed for offloading, staging, and stockpile use. The maximum structural capacity of these facilities shall not be exceeded by the Contractor.

3.4 Off-Site Staging and Stockpile Area

.1 The Contractor shall employ all BMPs as described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites), Section 01 35 43 (Environmental Procedures), the EMP, and included in the project permits when doing work at the Off-Site Staging and Stockpile Area.

.2 The Contractor shall treat, if applicable, and dispose of all dredge material, Dredge Debris, and Demolition Debris as soon as practical. Materials may not be stockpiled for extended periods of time unless otherwise accepted by the Departmental Representative.

.3 The Contractor shall construct, operate, and maintain the Off-Site Staging and Stockpile Area such that all effluent drainage water, stormwater, or other form of discharges from stockpiled dredge material, Dredge Debris, and Demolition Debris are collected for treatment and proper disposal.

.1 No direct discharge of untreated effluent from the Off-Site Staging and Stockpile Area to the receiving waters is allowed.

.2 All effluent from the Off-Site Staging and Stockpile Area shall be collected, treated, and discharged to federal, provincial, state (as applicable), and local Laws and Regulations, and conditions of the permits.

.3 The Contractor may elect to construct a water treatment system at the Off-Site Staging and Stockpile Area and shall demonstrate in the Construction Work Plan compliance with water quality requirements to discharge treated effluent back to the receiving waters. All water discharged to any surface water originating from the Off-Site Staging and Stockpile Area shall meet Canadian Council of Ministers of the Environment (CCME) or BC Ministry of the Environment water quality guidelines, or the more stringent of the two if in BC, or applicable local regulations in the United States. The Contractor shall provide analytical test results to the local discharge authority prior to discharge and shall account for time for the local discharge authority to review and accept the discharge as part of the completion of the work.

.4 The Contractor is allowed to segregate Dredge Debris from contaminated sediment, in order to dispose of the Dredge Debris at a Disposal Facility that will accept Dredge Debris as non-Industrial Land Use quality material (as defined in the BC Contaminated Sites Regulation).

.5 The Contractor may propose to mix additives with the dredge material to bind available water during offloading, stockpiling, or dewatering activities at no additional cost to the Contract. However, the Contractor is solely responsible for determining whether additives shall be used and whether the Disposal Facility will accept the dredge material with additives for disposal. The Contractor has sole responsibility for proper storage, handling, and containment of additives. The Contractor also has sole responsibility for cleanup and damage costs related to the use of additives.

.6 Upon completion of the work, the Contractor shall remove all vestiges of dredge material, Dredge Debris, Demolition Debris, liner, pump, discharge pipe, and other materials and clean up the Off-Site Staging and Stockpile Area to the pre-project condition.

3.5 Transportation to Processing Facility, Treatment Facility, and Disposal Facility

.1 The Contractor shall employ all BMPs as described in Section 01 35 13 43 (Special Project Procedures for Contaminated Sites), Section 01 35 43 (Environmental Procedures), the EMP, and included in the permits when transporting dredge material, Dredge Debris, and Demolition Debris to the Processing Facility, Treatment Facility, and Disposal Facility.

.2 Once offloaded at the Contractor Off-Site Offload Facility, the material may be barged, trucked, or taken by rail to the appropriate Treatment Facility or Disposal Facility.

.3 The Contractor shall be responsible for the safe transport of all dredge material, Dredge Debris, and Demolition Debris (in accordance with federal, provincial or state, and local Laws and Regulations, and conditions of the permits.

.4 Dredge material, Dredge Debris, and Demolition Debris transported from the Contractor Off-Site Offload Facility will be tarped and adequately secured in watertight containers, to minimize the release of odors and dust and to ensure that no spillage occurs, to the satisfaction of the Departmental Representative.

.5 IL+ dredge material is to be transported by licensed haulers for such waste classes within Canada (or the United States if applicable).

.6 The Contractor is responsible for preparing and signing all manifests and obtaining all acceptances for the transportation of all materials. Waste manifests shall be provided to the Departmental Representative. The Contractor must provide sufficient documentation to track all material from the Work Site to the Processing Facility, Treatment Facility, and Disposal Facility.

3.6 Material Processing, Treatment, Destruction, and Disposal

.1 The Contractor shall conduct Suspected UXO segregation activities at a Processing Facility, as described in the Construction Work Plan accepted by the Departmental Representative.

.1 The Contractor shall provide a magazine for the safe temporary storage of Suspected UXO that have been deemed safe to move by the Contractor's UXO Qualified Personnel. The magazine must meet the requirements of the Explosives Regulations, 2013, and be licenced by Natural Resources Canada. The magazine will only be required to temporarily store Suspected UXO prior to removal by DND for appropriate disposal. The Contractor should anticipate that DND will remove Suspected UXO from the magazine at least on a weekly basis (pick-up by DND may be more frequent if quantities require it).

.2 Transportation of Suspected UXOs from the Processing Facility may only be completed by DND's Explosive Ordnance Disposal Team. The Contractor shall not transport Suspected UXO from the Processing Facility.

.3 At the Contractor's discretion, material processing methods may include sorting, screening, segregation, washing, dewatering, or redistribution by particle size of the dredge material.

.2 At the Contractor's discretion, treatment methods may include bioremediation, chemical treatment, thermal desorption, and incineration. Treatment does not include blending, mixing, or dilution.

.3 Additional processing (in addition to the segregation of Suspected UXO) and/or treatment and destruction of dredge material is permitted under this Contract, and additional processing, treatment, and/or destruction activities must be completed in accordance with this Specification and Laws and Regulations. The Departmental Representative reserves the right to inspect processing, treatment, and destruction activities that are being completed at the Processing and/or

Treatment Facility at any time, including conducting independent sampling and testing of dredge material.

.4 The Contractor shall provide any and all waste discharge permits from a governing body (i.e., Transport Canada or the Queen's Harbour Master) required to operate the Processing Facility, as well as other permits and authorizations as described in the definition of the Processing Facility.

.5 The Contractor shall provide all Certificates of Treatment prior to final disposal of dredge material,Dredge Debris, and Demolition Debris at the Disposal Facility and Certificates of Disposals upon delivery of the material to the Disposal Facility. Processing of dredge material must be performed at a Processing Facility. Treatment of dredge material must be performed at a Treatment Facility. Completion of treatment activities at the Contractor Off-Site Offload Facility is not allowed unless the Contractor can provide existing permit and approval documentation indicating that the Contractor Off-Site Offload Facility is a Treatment Facility.

.6 The Contractor shall not change location of its Processing Facility, Off-Site Offload Facility, Treatment Facility, or Disposal Facility without prior notification to, and review and acceptance by, the Departmental Representative.

.7 Dredge material or other material sent to a Disposal Facility must be permanently stored at that facility.

.8 All materials require disposal at a Disposal Facility as IL+ material if the Contractor bulk handles the sediment. If Contractor chooses to process to try to reduce IL+ disposal, then the risk is solely on the Contractor and no additional costs shall be paid to the Contractor regardless of whether the Disposal Facility accepts the processed or treated materials at a different classification than IL+.

.9 If materials are processed to separate waste streams to try to reduce the quantity of IL+ disposal, then the Contractor shall:

.1 Test each waste stream, including any water generated or accumulated as part of processing, and provide results to the Departmental Representative prior to transporting any processed material from the Processing Facility. The Departmental Representative shall provide written acceptance of the material prior to the material being removed from the Processing Facility. The Contractor shall account for Departmental Representative review and acceptance of test results as part of the completion of their work.

.2 The Contractor shall provide documentation from the Disposal Facility that the Disposal Facility accepts all waste streams for disposal, whether IL+, less than IL+, or greater than IL+, such as hazardous waste that may have resulted from the Contractor's processing of the dredge material.

.3 By processing the sediment to reclassify portions for disposal purposes, the Contractor takes on sole responsibility for proper transport and disposal of all materials, regardless of reclassification results. If the

Contractor's choice to process the material results in a change in the disposal classification to hazardous waste level (e.g., concentrating the contaminants in a smaller waste volume), the Contractor must properly dispose of the hazardous waste materials following all applicable Laws and Regulations. No additional costs will be paid to the Contractor for changes resulting from reclassification of materials due to processing.

.4 The Archaeological Monitor and UXO Qualified Personnel shall inspect all processed waste streams.

.5 Provide safe access to the processed waste streams for Departmental Representative and UXO Qualified Personnel inspection.

.10 All water discharged to any surface water originating from the Processing Facility shall meet applicable permit discharge requirements. In the absence of applicable permit discharge requirements, the water shall meet CCME or BC Ministry of the Environment water quality guidelines, or the more stringent of the two. The Contractor shall provide analytical test results to the local discharge authority prior to discharge, and shall account for time for the local discharge authority to review and accept the discharge as part of the completion of the work.

END OF SECTION

1. PART 1 – GENERAL

1.1 Description

.1 Following completion of all dredging activities (Required Dredging and Contingency Re-Dredging) and acceptance of the work in a Zone by the Departmental Representative, the Contractor shall place Backfill Material.

.2 Structural Backfill Type A shall be placed to the thicknesses and limits shown on the Drawings for the D Jetty North Zone fender system and F/G Jetty Zone gas float structures. Structural Backfill Type A shall be placed prior to reinstatement of the fender system and gas float structures.

.3 Structural Backfill Type B shall be placed to the thicknesses and limits shown on the Drawings in the D Jetty East Zone.

.4 General Backfill shall be placed to the thicknesses and limits shown on the Drawings in the F/G Jetty Zone.

.5 Underpier Cover shall be placed in underpier areas to the thicknesses and limits shown on the Drawings in the D Jetty North Zone.

.6 Residuals Management Cover shall be placed in the F/G Jetty Zone to the thicknesses and limits shown on the Drawings. In the D Jetty North and D Jetty East Zones, Residuals Management Cover shall be placed as directed by the Departmental Representative based on the results of the post-dredge confirmation sampling. Residuals Management Cover will not be placed in the D Jetty underpier areas where the Underpier Cover is to be placed. Residuals Management Cover will be placed over the Structural Backfill Type A and Type B materials, to the thicknesses and limits shown on the Drawings.

.7 This work includes furnishing all labor, materials, tools, equipment, and incidentals required for Backfill Material placement in support of the overall project as described in the Drawings and in these Specifications.

1.2 Measurement and Payment Procedures

.1 The actual volume of Backfill Material that the Contractor may need to place in order to achieve the Required Minimum Placement Elevation, Required Minimum Placement Thickness, Targeted Placement Elevation, or Targeted Placement Thickness (as shown on the Drawings) is dependent upon the post-dredge surface constructed by the Contractor's placement means and methods. The Contractor shall account for any costs associated with additional placement volume that the Contractor may use in order to meet the Required Minimum Placement Elevation, Required Minimum Placement Thickness, Targeted Placement Elevation, or Targeted Placement Thickness in the unit price for STRUCTURAL BACKFILL TYPE A, STRUCTURAL BACKFILL TYPE B, GENERAL BACKFILL,

RESIDUALS MANAGEMENT COVER, or UNDERPIER COVER (which represents only the payable volume).

.1 The Contractor shall place Backfill Material, as shown on the Drawings, for STRUCTURAL BACKFILL TYPE A, STRUCTURAL BACKFILL TYPE B, GENERAL BACKFILL, RESIDUALS MANAGEMENT COVER, or UNDERPIER COVER, as included in the Unit Price Table.

.2 Backfill Material shall be placed within the lateral extents of dredging shown on the Drawings, and to the Required Minimum Placement Elevation, Required Minimum Placement Thickness, Targeted Placement Elevation, or Targeted Placement Thickness shown on the Drawings. Placement outside the lateral extents of dredging and/or above the Required Minimum Placement Elevation, Required Minimum Placement Thickness, or Payable Vertical Placement Tolerance will not be included as Payable Volume and is referred to as the Non-Payable Overplacement Allowance. Placement within the Payable Vertical Placement Tolerance will be paid. Contractor shall take into account the amount of non-payable overplacement volumes that will result from its placement means and methods, and account for that volume in its Tender Price for each Backfill Material.

.3 The Non-Payable Overplacement Allowance is 0.30 m for Structural Backfill Type A and Structural Backfill Type B, as shown on the Drawings. The Payable Vertical Placement Tolerance for each Backfill Material is identified in Section 01 11 55 (General Instructions) and shown on the Drawings. Material placed above the Non-Payable Overplacement Allowance and/or above the Payable Vertical Placement Tolerance is considered Excessive Overplacement. Material placed outside of the backfill placement horizontal extents (i.e., dredging limits), above the Non-Payable Overplacement Allowance, and/or above the Payable Vertical Placement Tolerance is considered Excessive Overplacement. Excessive Overplacement, as determined from comparison of Backfill Pre-Construction and Backfill Post-Construction Surveys, will not be paid for. The Departmental Representative reserves the right to require the Contractor to remove Excessive Overplacement material, at no extra cost to the Contract.

.4 If Excessive Dredging requires corrective action to fill in those over-dredged areas, the Backfill Material placed to fill in Excessive Dredging areas will be paid by the Contractor.

.2 Payment for Backfill Material placement will be made by the payable in situ cubic metre (m^3), based on comparison of Backfill Pre-Construction and Backfill Post-Construction Surveys, under the Tender Items for STRUCTURAL BACKFILL TYPE A, STRUCTURAL BACKFILL TYPE B, GENERAL BACKFILL, RESIDUALS MANAGEMENT COVER, or UNDERPIER COVER, as indicated on the Unit Price Table.

.3 Monthly progress payments during completion of the work will be measured based on Contractor-reported volumes calculated using Contractor Progress Surveys. Progress payments will be made for work certified by the Contractor as completed. The Contractor shall break down its progress payment requests to identify volumes associated with completed work under each respective Tender Item and include a statement certifying that the work has been completed.

.4 Final payment will be based on the final measurement of volume of material placed, and final payment shall be reconciled with previous monthly progress payments to determine the amount of final payment.

1.3 Related Sections

.1 Section 01 11 55 (General Instructions)

.2 Section 01 33 00 (Submittal Procedures)

.3 Section 01 35 13.43 (Special Project Procedures for Contaminated Sites)

.4 Section 01 35 43 (Environmental Procedures)

.5 Section 01 45 00 (Quality Control)

.6 Section 02 21 13 (Surveying and Positioning Control)

.7 Section 35 20 23 (Remedial Dredging, Barge Dewatering and In-Water Transportation)

1.4 Definitions

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

1.5 Submittals

.1 The Contractor shall submit a detailed Construction Work Plan in accordance with Section 01 33 00 (Submittal Procedures) within fifteen (15) working days following Contract Award for review and acceptance by the Departmental Representative.

.2 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 will be implemented for Backfill Material placement activities. Backfill Material placement activities in a Zone shall not begin until: 1) the Construction Work Plan has been reviewed and accepted by the Departmental Representative; 2) agency- and community-required notifications and review have been completed; and 3) all Required Dredging and Contingency Re-Dredging is completed within that Zone and has been accepted by the Departmental Representative. At a minimum, the description of the approach for placing materials shall contain the following information:

.1 Order and sequence in which the work is to be performed, including a description of equipment to be used and methods of operation.

.2 Reference to the construction work schedule that identifies timing and sequencing for completion of Backfill Material placement activities in each Zone, as they relate to other major elements of the work.

.3 Methods and procedures for placement of materials within required tolerances as laid out in these Specifications and shown on the Drawings.

.4 The Contractor shall provide documentation of the origin of the imported Backfill Material and testing certificates, as described in this Specification, provided by the supplier for the Departmental Representative review and acceptance prior to the start of work.

.5 The Contractor shall provide identification and certification documents for the independent, certified analytical laboratory that will conduct required testing for all Backfill Material that will be used as part of this Contract, as described in this Specification.

.6 Methods and procedures for completion of Backfill Material placement activities shall include means and methods for providing Environmental Protection, as described in Section 01 35 13.43 (Special Project Procedures for Contaminated Sites).

.7 Methods and procedures for completion of Backfill Material placement activities shall include means and methods for the protection of the underpier concrete bearing piles and timber piles, and any other existing structures during placement.

.3 A sample of each of the five (5) types of Backfill Material to be used for the work shall be provided to the Departmental Representative a minimum of two (2) weeks in advance of use at the Work Site. The sample shall consist of approximately 20 kilograms (kg) of material and should be composited from no less than five (5) subsamples taken throughout any one source. The Contractor shall ensure that the sample is representative of the material to be imported. The Contractor shall ensure that the source of Backfill Material will not change once the sample has been submitted or will submit a new separate sample for review and acceptance by the Departmental Representative if a new source of Backfill Material is used.

.4 The Contractor shall obtain laboratory test reports, as described in these Specifications. All laboratory test results shall be submitted to the Departmental Representative for review and acceptance no less than two (2) weeks prior to the start of Backfill Material placement activities.

.5 Daily Reporting: As part of the Contractor's Daily Construction Report, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall keep a daily record of the area(s) where Backfill Material has been placed, the estimated quantity of material placed (including barge displacement measurements), daily

Progress Surveys, certified weight tickets from the supplier, and a summary of other details of the work. This daily record shall be submitted to the Departmental Representative the morning following completion of the work for that day. The Daily Construction Report shall be signed by the Contractor's site superintendent and quality control manager.

.6 Weekly Reporting: As part of the Contractor's Weekly Construction Report, as described in Section 01 33 00 (Submittal Procedures), the Contractor shall summarize the week's Backfill Material placement activities. The Weekly Construction Report shall also identify anticipated work to be completed in the present week, and present the latest Post-Construction (i.e., post-placement) Survey and Progress Surveys. The Weekly Construction Report shall be signed by the Contractor's site superintendent and quality control manager.

1.6 References

.1 British Columbia Ministry of Transportation and Infrastructure, Construction Engineering Section, Construction and Maintenance Branch. 2012 Standard Specifications for Highway Construction. November 1, 2012.

.2 British Columbia Ministry of Energy and Mines. Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia. August 1998.

.3 British Columbia Ministry of the Environment, Environmental Protection Division. Water Quality Guidelines. Date varies by chemical parameter.

.4 Platinum Edition (Volume II) of the Master Municipal Construction Documents (MMCD). 2009.

.5 British Columbia Ministry of the Environment, Water Protection & Sustainability Branch. British Columbia Approved Water Guidelines: Aquatic Life, Wildlife & Agriculture. Summary Report. March 2016.

.6 Canadian Council of Ministers of the Environment (CCME). Canadian Environmental Quality Guidelines. 1999, updated 2001, 2002, 2003, 2004, 2005, 2006, and 2007.

.7 Formation Safety Environment Manual, Directive E2. Environmental and Archaeological Management of Land Alteration Activities (provided in Appendix E)

1.7 Quality Control

.1 The Contractor is responsible for providing all necessary quality controls to successfully complete the work, and to comply with its Quality Control Plan, as specified in Section 01 45 00 (Quality Control).

.2 The Departmental Representative will inspect placement activities for the Departmental Representative's quality assurance purposes. The Departmental Representative inspection shall in no way release the Contractor from complying

with the Specifications and all permits, and shall in no way be construed as acceptance of work.

1.8 Environmental Protection

.1 Backfill Material placement 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), the Environmental Management Plan (EMP), the Environmental Protection Plan (EPP), and with the permits.

1.9 Inspection of Materials

.1 Barges of Backfill Material shall be visually inspected by the Contractor upon delivery. Materials shall be inspected for the presence of foreign, recycled, or reprocessed material or debris, to ensure that imported materials are natural, native, virgin materials and free of contaminants. The presence of foreign, recycled, or reprocessed materials or debris is to be reported to the Departmental Representative, who will determine if the import materials are acceptable for performance of the work. In the event of rejections, it shall be the responsibility of the Contractor to remove all rejected material from the Work Site at no extra cost to the Contract. Acceptance or rejection of import materials brought to the Work Site shall be provided within one (1) working day of the Contractor reporting to the Departmental Representative.

.2 The Departmental Representative may, at any and all times, perform an independent inspection or conduct sampling of Backfill Material. Materials may be rejected if identified as substandard or if test results show it to be substandard, based on the sole discretion of the Departmental Representative. The Departmental Representative may request the Contractor to segregate material for testing purposes at no extra cost to the Contract. Segregated materials may be tested according to designated procedures at the Departmental Representative's discretion. Inspection and testing by the Departmental Representative shall not be used by the Contractor as a delay claim.

.3 Inspection of Source: The borrow source(s) shall be inspected by the Contractor. During such inspection, the Contractor shall ensure that the materials to be delivered to the Work Site will meet the appropriate requirements of the Specifications. The Contractor shall provide notice to the Departmental Representative within five (5) working days of such inspections. At the discretion of the Departmental Representative, the Departmental Representative or another Departmental Representative-designated representative may accompany the Contractor to witness such inspections. This witnessing shall in no way release the Contractor from complying with the Specifications, and shall in no way be construed as approval of any particular source of material.

1.10 Regulatory Requirements

.1 See Section 01 11 55 (General Instructions) for regulatory requirements associated with this Contract.

1.11 Misplaced Material

.1 Should the Contractor, during the execution of the work, lose, dump, throw overboard, sink, or misplace any material, dredge, barge, machinery, or appliance, the Contractor shall promptly recover and remove the same. The Contractor shall give immediate verbal notice, followed by written confirmation, of the description and location of such obstructions to the Departmental Representative and shall record the geographic coordinates and buoy such obstructions until they are removed.

.2 Should the Contractor refuse, neglect, or delay compliance with this requirement, such obstructions 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.

2. PART 2 – PRODUCTS

2.1 Backfill Material

.1 All five (5) types of Backfill Material must meet the testing requirements as described in these Specifications.

.2 All five (5) types of Backfill Material shall not contain any man-made products or debris.

.3 Structural Backfill Type A shall conform to the British Columbia Ministry of Transportation and Infrastructure (BC MOTI) specifications for Well-graded Base 75 millimetres (WGB 75 mm).

.4 Structural Backfill Type B shall consist of crushed granular materials, free of organic material, meeting the gradation shown in the table below. The specified gradation is anticipated to be achieved by a blend of approximately 20% by weight BC MOTI Open-graded Base 75 millimetres (OGB 75 mm) and approximately 80% by weight of suitably sized quarry spalls. The blended product shall be developed prior to placement on the transport barge, and the Contractor shall take necessary measures to avoid segregation of the Structural Backfill Type B material during transport and placement. The Structural Backfill Type B material shall not be blended on the transport barge.

Structural Backfill Type B

Sieve Designation (mm)	Percent Passing
200	100
75	20 – 52
50	14 – 40
37.5	10 – 33
19	3 – 19
6.3	0 – 12
2.36	0 – 10
0.3	0 – 8
0.075	0 – 5

.5 General Backfill shall conform to the British Columbia Ministry of Transportation and Infrastructure Specifications for Granular Sub-Base (SGSB).

.6 Underpier Cover shall conform to the British Columbia Ministry of Transportation and Infrastructure specifications for Well-graded Base (WGB) 75 mm.

.7 Residuals Management Cover shall be clean, fine-grained river sand material free of organic material, as similar in nature to the native sediment within the Work Site (sand) as practicable, and shall conform to the 2009 Platinum Edition (Volume II) of the Master Municipal Construction Documents (MMCD) as provided in the table below:

Residuals Management Cover

Sieve Designation	Percent Passing
19 mm	100
4.76 mm	80 – 100
0.60 mm	20 – 100
0.42 mm	10 – 100
0.25 mm	0 – 80
0.15 mm	0 – 50
0.074 mm	0 – 4

2.2 Materials Testing

.1 Chemical testing of Backfill Material is required to assess the acid rock drainage (ARD) and metal leaching (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. The laboratory will be accredited according to Standards Council of Canada, Canadian Association of Laboratory Accreditation Inc. (ISO/IEC 17025) and British Columbia Ministry of Environment. Laboratory tests shall consist of the following:

.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 Approved Water Guidelines and the CCME guidelines for marine aquatic life. If tests results do not meet requirements for acceptance by these guidelines, then the Contractor shall submit a letter of professional opinion regarding suitability recommendation for use of material at the Work Site to the Departmental Representative for acceptance.

.4 The following additional tests are required to assess the durability of Structural Backfill Type B:

.1 Specific gravity per ASTM D6437; a bulk density of the material shall be determined using results of this specific gravity analysis.

.5 One sample for every one thousand (1,000) m^3 (with an absolute minimum of one sample) of Backfill Material imported to the Work Site will be collected and analyzed per the above tests. The frequency of testing may be increased or decreased by the Departmental Representative if considered appropriate based on the results of testing or visual assessment of imported material. A minimum of one sample will be collected and analyzed for each backfill type regardless of the volume imported to the Work Site.

.6 All laboratory test results shall be submitted to the Departmental Representative no less than two (2) weeks prior to the start of Backfill Material placement activities. Laboratory test results shall be less than three (3) months old when submitted. The Departmental Representative will accept or reject the use of the material(s) in writing based on the material testing guidelines and requirement identified in this Specification within two (2) working days of receipt. No material shall be placed by the Contractor prior to receipt of acceptance in writing by the Departmental Representative. All material brought to the Work Site that does not meet the above-noted guidelines will be removed from the Work Site immediately at the Contractor's cost.

.7 Documented proof of meeting the above-referenced guidelines shall be in the form of a signed cover letter and signed test analysis results from an independent testing firm accredited according to the Standards Council of Canada, the Canadian Association of Laboratory Accreditation Inc. (ISO/IEC 17025), and British Columbia Ministry of Environment.

.1 The cover letter shall:

.1 Clearly state that all imported material meets the stated guidelines.

.2 Include the name and location of all material sources.

.3 Identify the nature of current and historical activities conducted at the source.

.2 The test analysis reports shall:

.1 Clearly show the test results for each type of material tested and compared against the above-reference guidelines in an easily read tabular format.

.2 Include the name and location of all material sources.

.8 The 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.

3. PART 3 – EXECUTION

3.1 Sequencing

.1 This section supplements the general sequence of work as described in Section 01 11 55 (General Instructions) and provides more specific requirements related to Backfill Material placement.

.2 Backfill Material placement must be completed in each Zone after completion of the Required Dredging Post-Construction Survey or Contingency Re-Dredging Post-Construction Survey (if directed by the Departmental Representative) within the Zone. This Required Dredging Post-Construction Survey or Contingency Re-Dredging Post-Construction Survey (if directed by the Departmental Representative) will serve as the Backfill Pre-Construction Survey for placement of the Backfill Material.

.3 The Contractor shall place all Backfill Material prior to structure reinstatement.

.4 The Contractor will use the Backfill Pre-Construction Survey completed prior to the start of work to determine the Targeted Placement Elevations and Thicknesses for the F/G Jetty Zone.

.5 The Contractor shall place Structural Backfill prior to Underpier Cover (at D Jetty North Zone) and General Backfill (at F/G Jetty Zone), as shown on the Drawings.

.6 The Contractor shall place Residuals Management Cover in each Zone after all other Backfill Material placement is completed within each Zone, as indicated on the Drawings for the F/G Jetty Zone and as directed by the Departmental Representative for the D Jetty East and D Jetty North Zones. The Contractor is allowed to place Residuals Management Cover in both the D Jetty North Zone and D Jetty East Zone concurrently.

.7 The Contractor shall conduct Progress Surveys and Backfill Post-Construction Surveys (and other field verification as the Contractor determines necessary to assess compliance with Required Minimum Placement Elevation, Required Minimum Placement Thickness, Targeted Placement Elevation, and Targeted Placement Thickness) in accordance with Section 02 21 13 (Surveying and Positioning Control). Backfill Post-Construction Surveys shall be conducted after the placement of each Backfill Material type. The Departmental Representative will review the Backfill Post-Construction Survey data and, if satisfactorily completed, will accept the Backfill Material placement activities as complete.

.8 If the Required Minimum Placement Elevation, Required Minimum Placement Thickness, Targeted Placement Elevation, and Targeted Placement Thickness requirements are not achieved at all specified placement locations as shown on the Drawings, or Excessive Overplacement occurred, the Contractor shall correct placement deficiencies and conduct additional Backfill Post-Construction Surveys to the satisfaction of the Departmental Representative and at no extra cost to the Contract.

3.2 Backfill Material Placement (Structural Backfill Type A or B, General Backfill, Residuals Management Cover)

.1 The Contractor shall provide barge displacement measurements as obtained by a certified marine surveyor, or their designee, for all loaded material barges as they arrive at the Work Site. Barge displacement measurements, both empty and full, shall also be collected, and provided as part of the Contractor's Daily and Weekly Construction Report, at the end of each work shift and following placement of all Backfill Material stockpiled on the Contractor material barges.

.1 The Marine Surveyor Report shall also document seaworthiness of each barge used for transport of Backfill Material to the Work Site from the Contractor's Off-Site Offload Facility or the point of origin of the barge. Documentation of the seaworthiness of each transport barge shall be submitted to and accepted by the Departmental Representative prior to transporting Backfill Material from off site.

.2 Place the Backfill Material to meet the Required Minimum Placement Elevation, Required Minimum Placement Thickness, Targeted Placement Elevation, Targeted Placement Thickness as shown on the Drawings. No compaction is required.

.3 When placing materials on slopes, all Backfill Material shall be placed from the bottom (toe) of the slope upward, with the exception of Underpier Cover placement. Materials shall be placed in such a way that allows for complete coverage of the designated area and minimizes disturbance to the existing dredge material surface.

.4 The Contractor shall employ placement means and methods that will avoid resuspending sea bed sediment during placement activities, and prevent excessive mixing of the placed materials with the sea bed sediment. The Contractor shall place Backfill Material by methods proposed in the Construction Work Plan, and accepted in writing by the Departmental Representative.

.5 The Contractor shall not place Backfill Material by rapid dumping of a barge load; rather, it shall be placed in a controlled manner.

.6 The Contractor shall not place barge and dredge derrick anchors or spuds or any other equipment into Structural Backfill Type A or B, and shall minimize to the extent practicable any anchoring or spudding within other backfill areas (i.e., Residuals Management Cover and General Backfill), unless accepted by the Departmental Representative.

3.3 Backfill Material Placement (Underpier Cover)

.1 Comply with the requirements from Section 3.2 above. In addition to those requirements, additional requirements for placing Underpier Cover material are identified below.

.2 Underpier access shall be from the water only through the piling bents on the north face of the D Jetty North Zone. No placement operations are allowed through the D Jetty deck.

.3 D Jetty piling bent spacing, cross bracing and other structural items, and deck elevations are shown on the Drawings for information purposes. Contractor is responsible for field verifying dimensions/elevations of structures and underpier access.

.4 The Contractor shall protect all D Jetty structural items during Underpier Cover placement, and report any incidents that may cause damage to the D Jetty structure immediately to the Departmental Representative. The Contractor will be solely responsible for any corrective actions of damage caused by Contractor actions.

.5 The Contractor shall carefully select their means and methods for placing Underpier Cover to account for the tidal variation over the construction duration and limited access to the underpier areas (both physical access and variable clearance), and to prevent damage to any portion of the existing D Jetty structure. If Contractor uses a high speed conveyor to place Underpier Cover materials, the placement operations shall not damage existing structures through direct impact of either the conveyor equipment or Underpier Cover material into the structure. As stated in Section 02 41 16.01 (Structure Demolition), the Contractor is required to protect existing structures during placement of Backfill Material.

.6 For Underpier Cover placement, the Contractor may propose to place the material from the top of slope to the face of the D Jetty North Berth face. Contractor shall carefully control their placement methods to ensure that a uniform thickness of material is achieved. If top-to-bottom placement results in uneven thickness, raveling, or any deformation of the slope, Contractor shall modify their placement methods to the satisfaction of the Departmental Representative.

END OF SECTION