

## SPECIFICATIONS AND DRAWINGS

### SPECIFICATIONS:

<b><u>Division</u></b>	<b><u>Title</u></b>	<b><u>No. of Pages</u></b>
Division 01	011100 – Summary of Work	6
	011400 - Work Restrictions	2
	013300 - Submittal Procedures	3
	01352906 - Health and Safety Requirements	4
	014100 - Regulatory Requirements	1
Division 35	352023 - Dredging	7

### DRAWINGS:

- SP-DR-001 – General Arrangement
- SP-DR-002 – Site Location and Disposal at Sea Location

**Part 1            General**

**1.1                DEFINITIONS**

- .1 Throughout this specification, where the words “Department Representative”, "Owner", "Engineer", "Contractor" or “Harbour Authority” appear, these shall be defined as follows:
  - .1 Department Representative/Owner - Department of Fisheries and Oceans Small Craft Harbours, 401 Burrard Street, Vancouver B.C.
  - .2 Engineer - An employee of the Owner or Consultant assigned by the Owner as the Engineer for this project.
  - .3 Contractor - The party accepted by the Owner with whom a formal contract is entered to complete the work of this project.
  - .4 Harbour Authority - The Site is operated by the Steveston Harbour Authority, a third-party entity from the site Owner.

**1.2                COMMENCEMENT AND COMPLETION**

- .1 The Contractor shall commence site work within twenty (20) days upon notification of award of this contract.
- .2 All work including clean-up and demobilization shall be **completed by March 31, 2016.**
- .3 Underwater works shall be conducted in consultation with local DFO officer due to fish habitat/herring conservation window, unless otherwise approved by Habitat and Enhancement Branch, Fisheries and Oceans.

**1.3                SCOPE OF WORK**

- .1 Except as otherwise specified; the work described in this section shall include the supply of materials, equipment, tools, services, labour and all things necessary for the completion of the F1571-155068 Steveston (Paramount) Re-Dredging Contract.
- .2 All replaced items, cut-offs and waste material, unless otherwise specified, shall be disposed by the Contractor in strict accordance with provincial, local, and municipal

regulations and Part 8 of the National Building Code and with the Canadian Construction Safety Code.

- .3 All work carried out as part of this contract shall be completed without modification to any of the existing structures unless expressly indicated in the contract documents, or approval by the Engineer is provided, in writing, to do so. Any modifications proposed by the Contractor will be taken on at the Contractors expense. No disruption of services shall occur as a result of work completed in this contract without written approval of the Owner. Any modifications or relocation of services must be approved by the Owner.
- .4 The work to be carried out under this contract generally consists of, but is not limited to the following items:
  - .1 Mobilization/Demobilization
    - a) This item includes the lump sum cost for mobilization and demobilization including moving all crew, equipment and material on and off the site and site clean-up after completion of the work.
    - b) All salvageable material that is not being used in the works but are deemed to be recyclable will be stored and sorted onsite on the direction of the Owner; otherwise to be properly and legally disposed by the Contractor.
  - .2 Dredging of "Class B" Material
    - a) Labour, equipment and machinery to dredge and remove "Class B" material as per drawings and specifications. Note: All existing floats will remain in place. There will be no dredging under the float lines.
  - .3 Disposal at Sea of "Class B" Material
    - a) Labour, equipment and machinery to transport and dispose "Class B" material to Point Grey Disposal at Sea location as specified in tender drawings.
  - .4 Upland Disposal of "Class B" Material
    - a) Labour, equipment and machinery to transport and dispose "Class B" material to an approved upland disposal location as decided by the Contractor.
    - b) Dredged material to be disposed at the upland location is material which is above the specifications for Disposal at Sea.

**1.4 COMPLIANCE WITH STANDARD SPECIFICATIONS CODES AND REGULATIONS**

- .1 Unless expressly stated to the contrary, all materials, equipment and articles furnished by the Contractor shall comply with the applicable provisions of the standards of the Canadian Standards Association (CSA) or the Canadian Government Specification Board (CGSB) with the applicable provisions of the American Society for Testing Materials (ASTM), American Concrete Institute (ACI) and the American Water Works Association (AWWA).

**1.5 MATERIALS SUPPLIED BY THE CONTRACTOR**

- .1 The Contractor is required to supply all materials, labour, required hand and power tools, generators, equipment and all other things required to complete the contract.

**1.6 MANDATORY SITE VISIT AND INSPECTION OF SITE**

- .1 There will be a mandatory on site meeting between the Departmental representative and successful bidder within the first seven (7) days after award of the contract.
- .2 It is the responsibility of each bidder to obtain all necessary information pertaining to local site conditions and existing works.

**1.7 CONSTRUCTION WORK SCHEDULE**

- .1 The Contractor shall provide to the Owner a Bar Chart (GANTT Chart) schedule of all works to be completed in the contract within ten (10) days of contract award.
- .2 The Contractor shall work whatever shifts required in order to ensure the work meets regulatory windows and is completed by the completion date of the contract.
- .3 The Contractor shall normally perform all work within the hours of daylight except in instances where the Contractor has requested and received approval for shift changes.

**1.8 SETTING OUT OF WORK**

- .1 Steveston Harbour Authority Office is located at 12740 Trites Road, Richmond B.C. See *Site Location and Disposal Site Location* Drawing.
- .2 The Contractor shall not enter on nor occupy with men, tools, equipment or material, any ground outside the property of the Owner without the written consent of the party owning such ground. Other Contractors or employees or representatives of the Owner may, for all necessary purposes, enter upon the work and premises use by the Contractor, and the Contractor shall conduct his work so as not to impede unnecessarily any work being done by others nor adjacent to the site.

- .3 The Contractor shall keep proper illumination each night between hours of sunset and sunrise upon all floating plant and false-work, upon all arranges and other stakes where necessary, upon all buoys of such size and of such locations as required by a governing authority. When work is done at night, maintain from sunset to sunrise such lights on or about the work and plant as necessary for the proper observation of the work and the efficient prosecution thereof.
- .4 All work carried out as part of this contract shall be completed without modification to any existing structure unless expressly indicated in the contract documents, or approved by the Engineer in writing. Any modifications proposed by the Contractor will be taken on at the Contractors expense.

#### **1.9 CONTRACTOR'S PERSONNEL**

- .1 The Contractor's representative on site shall be completely familiar with the method of work to be employed. Such personnel shall remain on site for the duration of the work as required by the Engineer.

#### **1.10 PERMITS, CERTIFICATES, LAWS AND ORDINANCES**

- .1 The Contractor shall, at his own expense, procure all permits, certificates and licenses required of him by law for the execution of his work under this contract. He shall comply with all Federal, Provincial or Municipal laws, ordinances or rules and regulations relating to the performance of his work and in force during the duration of this contract.
- .2 The Contractor is required to give all required notices, comply with all local, municipal, provincial, and federal laws, ordinances, codes, by-laws, rules and regulations relating to the work.

#### **1.11 RESPONSIBILITY TO PERSONNEL**

- .1 The Contractor shall have full responsibility for the board, lodging and transportation of his personnel and sub-Contractors. The cost for this shall be incorporated into their unit prices. He shall comply with all labour requirements, Worker's Compensation regulations and general working conditions in the area.

#### **1.12 DRAWINGS**

- .1 The following drawings and documents shall be considered part of this contract. These drawings are to be used as a reference; the Contractor is to confirm all dimensions, elevations and locations.

Contract Drawings:

SP-DR-001 – General Arrangement

SP-DR-002 – Site Location and Disposal at Sea Location

**1.13 AS-BUILT DRAWINGS**

- .1 The Contractor shall mark up one set of plans with any changes or amendments made to the works. These plans shall be submitted to the engineer before the Final Certificate of Completion is issued.

**1.14 SITE SECURITY**

- .1 The Contractor is responsible for all materials and equipment either supplied by the Contractor, the Owner, or the Engineer. The Contractor is responsible for the repair and replacement of stolen or damaged items.
- .2 For site illumination, please refer to clause 1.8.3.

**1.15 CODES AND STANDARDS**

- .1 Where specific codes and standards are not dated, work shall conform to the latest issue of the specified standards, as revised and amended at the date of receipt of the tender.
- .2 The Contractor shall follow all regulations in accordance with the Fisheries Act. Care shall be taken not to release any deleterious materials to fish habitat into the water. Best Management Practices for Pile Driving and Related Operations (Nov 2003) attached in Specifications should be followed.

**1.16 SITEWORK**

- .1 All work shall be completed to the lines and grades as shown on the drawings or as directed by the Engineer.
- .2 All heavy construction equipment shall be free of leaks and cleaned prior to construction.
- .3 The Contractor shall have absorbent pads on site in case of any oil leaks or contaminants entering the water.

**1.17 MATERIALS SUPPLIED BY OWNER**

- .2 All materials required to complete the work in this contract are to be provided by the Contractor.

**1.18 CO-OPERATION WITH HARBOUR AUTHORITY AND OTHERS**

- .1 The Contractor will give the Owner a minimum forty-eight (48) hours' notice for work that may interrupt access to the any part of the harbour.
- .2 The site shall be left in a safe condition at the completion of the each work day.
- .3 The Contractor should work together with the Harbour Authority and Engineer's Representative to set up risk management plan for the project. This aims to identify risk of individual work item, streamline communications and minimize the associated risk to safety and operation in the harbour. The plan may include but not limited to revision of schedule and methodology, close monitoring of weather condition, navigation management during construction. Failure to implement the risk management plan may cause liability to the Contractor for damages of the harbour property during construction.
- .4 The cost for use of any Harbour Authority services are those of the Contractor and the cost of any such services should be included in the cost of this tender.

**1.19 CONDITION OF STRUCTURE**

- .1 The harbour structure is constructed in the late 1960s. The Contractor is responsible to avoid any damages to the property and personnel during construction.

**1.20 INSPECTION OF STRUCTURE**

- .1 The Owner shall inspect the completed works. The Contractor shall be responsible for the costs of any re-inspections that may be required due to errors, omissions and unreasonable scheduling of the Contractor.

**END OF SECTION**

Approved: 2005-12-31

**Part 1            General**

**1.1                RELATED SECTIONS**

**1.2                ACCESS AND EGRESS**

- .1      Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

**1.3                USE OF SITE AND FACILITIES**

- .1      Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with the Departmental Representative to facilitate work as stated.
- .2      The Contractor shall obey all navigation regulations and conduct operations so as to interfere as little as possible with the use of the berthing spaces, fairways and passages. Install and maintain any and all protection to navigation as may be required by any properly constituted authority or by the Departmental Representative. During the course of construction and clean up, do not dispose of surplus, waste, or demolished materials in the waters.
- .3      Maintain existing services to the harbour facilities and provide access for personnel, vessels and vehicle.
- .4      Where security is reduced by work provide temporary means to maintain security.
- .5      The Contractor shall supply for their own use; sanitary, first aid, and all other temporary services and facilities required for the work.
- .6      The Site is operated by the Steveston Harbour Authority, a third-party entity from the site Owner. The Contractor is required to coordinate the work with the Harbour Authority, including temporary use/closure of the site for work equipment, material and machinery storage, temporary services for construction, and so on in order to complete the work. Agreement with the Harbour Authority is required.

**1.4                EXISTING SERVICES**

- .1      Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission if required.
- .2      Where work involves breaking into or connecting to existing services, give Departmental Representative and Steveston Harbour Authority minimum forty-eight (48) hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions at a minimum. Carry out interruptions after normal working hours of occupants if possible, as approved by Departmental Representative and the Harbour Authority.



- .3 Provide access for pedestrian, vehicular and marine traffic.

## **1.5 SETTING OUT OF WORK**

- .1 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .2 Keep within limits of work and avenues of ingress and egress.
- .3 The Contractor shall provide all requisite barriers, fences, warning signs, lights and watching for the protection of persons and property on or adjacent to the site.
- .4 The Contractor shall normally perform all work in eight (8) hours per day, within the hours of daylight between 07:00 and 17:00 according to local by-law; unless otherwise approved by Departmental Representative and Steveston Harbour Authority.
- .5 The Contractor shall keep proper illumination each night between hours of sunset and sunrise upon all floating plant and false-work, upon all arranges and other stakes where necessary, upon all buoys of such size and such locations as required by a governing authority.
- .6 All heavy equipment shall be free of leaks and cleaned prior to construction. The Contractor shall have absorbent pads on site in case of any oil leaks or contaminants entering the water.

## **1.6 SECURITY CLEARANCES**

- .1 Personnel employed on this project may be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter the premises. DFO is not responsible for the clearances of the Contractor.

**END OF SECTION**

Approved: 2006-09-30

**Part 1            General**

**1.1                RELATED SECTIONS**

**1.2                ADMINISTRATIVE**

- .1     Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2     Do not proceed with Work affected by submittal until review is complete.
- .3     Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4     Where items or information is not produced in SI Metric units converted values are acceptable.
- .5     Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6     Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7     Verify field measurements and affected adjacent Work are co-ordinated.
- .8     Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9     Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10    Keep one reviewed copy of each submission on site.

**1.3                SHOP DRAWINGS AND PRODUCT DATA**

- .1     The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2     Submit shop drawings bearing stamp and signature of qualified Professional Engineer registered or licensed in British Columbia, Canada.
- .3     Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion

of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .4 Allow ten (10) working days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data, and sample.
  - .5 Other pertinent data.
- .8 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Sub-Contractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
    - .11

- .9 After Departmental Representative's review, distribute copies.
- .10 Submit one (1) electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit one (1) electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit one (1) electronic copy of surveyor's Reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Documentation of the testing and verification actions taken by surveyor's representative to confirm compliance with manufacturer's standards or instructions.
- .13 Supplement standard information to provide details applicable to project.
- .14 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, submissions will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .15 The review of shop drawings by Small Craft Harbours (SCH) is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that SCH approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
  - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

#### **1.4 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Immediately after award of Contract, submit transcription of insurance.

**END OF SECTION**

Approved: 2006-06-30

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Health and safety considerations required to ensure that Small Craft Harbours/DFO shows due diligence towards health and safety on construction sites, and meets the requirements laid out in PWGSC/RPB Departmental Policy DP 073 - Occupational Health and Safety - Construction.

**<http://publiservice.tpsgc-pwgsc.gc.ca/ipm-dpi/politique-policy/p073-eng.html>**

**1.2                RELATED SECTIONS**

- .1        01 41 00 Regulatory Requirements
- .2        01 33 00 Submittal Procedures

**1.3                REFERENCES**

- .1        Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2        Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1        Material Safety Data Sheets (MSDS).
- .3        Province of British Columbia
  - .1        Workers Compensation Act, RSBC 1996 - Updated 2006.
  - .2        Occupational Health and Safety Act, S.N.S. [1996].

**1.4                SUBMITTALS**

- .1        Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Submit site-specific Health and Safety Plan: Within seven (7) days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1        Results of site specific safety hazard assessment.
  - .2        Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
  - .3        Risk Management and Safety Procedure for possible events including but not limited to storm, fire, and fall.
- .3        Submit one (1) copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
- .4        Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5        Submit copies of incident and accident reports.
- .6        Submit WHMIS MSDS - Material Safety Data Sheets if requested.

- .7 Departmental Representative may review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within five (5) days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within five (5) days after receipt of comments from Departmental Representative.
- .8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

## **1.5 FILING OF NOTICE**

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

## **1.6 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

## **1.7 MEETINGS**

- .1 Schedule and administer Health and Safety meeting prior to commencement of Work.

## **1.8 REGULATORY REQUIREMENTS**

- .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

## **1.9 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:
  - .1 Harbour Manager.
  - .2 Departmental Representative.

## **1.10 GENERAL REQUIREMENTS**

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

**1.11 RESPONSIBILITY**

- .1 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.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

**1.12 COMPLIANCE REQUIREMENTS**

- .1 Comply with Workers Compensation Act, B.C.
- .2 Comply with Occupational Health and Safety Regulations.
- .3 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

**1.13 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

**1.14 HEALTH AND SAFETY CO-ORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
  - .1 Have site-related working experience specific to activities associated with dredging and material transportation.
  - .2 Have working knowledge of occupational safety and health regulations.
  - .3 Be responsible for completing Contractor'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.

**1.15 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 having jurisdiction, and in consultation with Departmental Representative.

**1.16 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

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

**1.17 BLASTING**

- .1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Departmental Representative.

**1.18 WORK STOPPAGE**

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

**END OF SECTION**



Approved: 2006-03-31

**Part 1            General**

**1.1                REFERENCES AND CODES**

- .1        Perform Work in accordance with Fisheries Act, Disposal at Sea Regulations, Navigable Waters Protection Act, including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2        Meet or exceed requirements of:
  - .1        Contract Documents.
  - .2        Specified standards, codes and referenced documents.

**1.2                REGULATORY REQUIREMENTS**

- .1        Underwater work shall be conducted in consultation with DFO officer due to fish habitat/herring conversation window, unless otherwise approved by Ecosystem Management Branch, Fisheries and Oceans.

**END OF SECTION**

Approved: 2002-12-04

**Part 1            General**

**1.1                RELATED SECTIONS**

- .1            011400 Work Restrictions
- .2            013300 Submittal Procedures

**1.2                MEASUREMENT PROCEDURES**

- .1            Only material excavated below existing seabed elevation and above proposed sub-grade dredge elevation within side slopes indicated or specified will be measured.
- .2            Dredging will be measured by volume in cubic meters. A pre and post survey will be completed by a Departmental Representative to determine volumes.
- .3            Post dredging elevations for quantity computations will be shallowest of grade, bedrock or "Average of Instantaneous" sounding for each matrix block. The post dredging soundings will be performed by Departmental Representative to confirm the work according to the specifications.
- .4            The Contractor shall propose dredging, transportation and disposal methodology in compliance with approved permits and approvals for such work
- .5            Obstructions
  - .1            Removal of obstructions, if any, authorized by Departmental Representative will be measured in hours actually used in removal.
  - .2            Labour and dredging equipment used for removal of obstructions will be paid for at rate submitted with unit prices as a contingency.
- .6            All operations in connection with field positioning of dredging equipment will not be measured separately for payment.
- .7            No separate payment will be made for Contractor's survey vessel, equipment, crew, survey or diving services, board, lodging and transportation of the Contractor's personnel and sub-Contractors. These costs shall be incorporated into his prices.
- .8            Payment will include dredging operation, dredge material handling and transportation, and disposal of dredge material at location specified in the tender documents.
- .9            There will be no additional payment for delays incurred during periods when no dredging is permitted.
- .10           There will be no additional payment for downtime and for delays caused by vessel traffic.
- .11           Removal of infilling material will not be measured for payment.
- .12           Mobilization and demobilization of dredging equipment to be lump sum.
- .13           No separate payment will be made for sweeping.

### 1.3 DEFINITIONS

- .1 Dredging: excavating, transporting and disposing of underwater materials.
- .2 Class A Material: solid rock requiring drilling and blasting to loosen, and boulders or rock fragments of individual volumes  $1.5 \text{ m}^3$  or more.
- .3 Class B Material: loose or shale rock, silt, sand, quick sand, mud, shingle, gravel, clay, sand, gumbo, boulders, hardpan and debris of individual volumes less than  $1.5 \text{ m}^3$ .
- .4 Obstructions: material other than Class A, having individual volumes of  $1.5 \text{ m}^3$  or more.
- .5 CPM: cubic meters place measurement  
SQM: area in square metres projected horizontal  
CMSM: cubic meters scow measurement
- .6 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials associated with site operation.
- .7 Grade: plane above which material is to be dredged.
- .8 Sub-grade: plane parallel to and 300 mm below grade.
- .9 Estimated Quantity: Volume of material calculated to be above dredge limits and within specified side slopes unless otherwise specified.
- .10 Side Slope: inclined surface or plane from subgrade at side limit of dredging area to intersect original ground line outside of side limit and to be expressed as ratio of horizontal to vertical.
- .11 Chart Datum: permanently established plane from which soundings or tide heights are referenced, usually Lowest Normal Tide (L.N.T.).
- .12 Coordinates:
  - .1 U.T.M.: universal transverse mercator projection.
  - .2 M.T.M.: modified transverse mercator projection.
  - .3 U.T.M. or M.T.M. Coordinates: plane rectangular coordinates used in grid system in which grid network is applied to U.T.M. or M.T.M. projection. Horizontal control information as indicated.
- .13 Minimum Mode: mode of operation of hydrographic survey equipment where minimum sounding over length of travel between position updates will be retained in memory. Soundings taken in this mode may be shallower than actual bottom elevations due to variations in water depths due to wave action.
- .14 Matrix Block: each dredge area is presented as number of 5 x 5 m long blocks. Dependent on position of sounding, block may have two (2) to four (4) soundings contained within it.
- .15 Least of Minimum Plan: hydrographic survey plan in which least sounding in grouping of matrix blocks is plotted.

- .16 Instantaneous Mode: mode of operation of hydrographic survey equipment where only sounding observed at predetermined distance interval is retained in memory.
- .17 Average of Instantaneous Plan: hydrographic survey plan in which average sounding in appropriate grouping of matrix blocks is plotted.
- .18 Lowest Normal Tide (L.N.T.): plane so low that tide will seldom fall below it.
- .19 Cleared Area: area of dredging accepted as complying with plans and specifications.

#### **1.4 SUBMITTALS**

- .1 Submit to Departmental Representative the proposed methodology of dredging and transportation of material to disposal site. Required regulatory approvals or permits, other than the disposal at sea permit and habitat approval, are to be obtained by the Contractor and submitted to the Departmental Representative. Cost for these items are to be included in the Contractor's bid

#### **1.5 REGULATORY REQUIREMENTS**

- .1 Comply with municipal, provincial and national codes and regulations relating to project.
- .2 Mark floating equipment with lights in accordance with Canadian Coast Guard and Transport Canada standard.

#### **1.6 WASTE MANAGEMENT AND DISPOSAL**

- .1 Approximately 25,000m<sup>3</sup> of dredge material needs to be disposed of at the Point Grey - Ocean Disposal Site as approved with permit. Location of disposal site outlined in tender drawings.
- .2 Approximately 10,000m<sup>3</sup> of dredge material needs to be disposed of at a certified upland disposal site. This site may be selected by the Contractor upon contact award and must be approved by the Owner. A manifest must be submitted to the Owner for all disposal at upland facilities.
- .3 Contractor is responsible for securing any required permits and approvals for transit of materials to the disposal site. Permit for disposal at the site will be obtained by Owner.
- .4 Type of basin material in the vicinity of the general site area was investigated in 2014, and is primarily classified as Class B material:
  - .1 0.0 – 0.8m: silty sand and shells (grey), occasional gravel, loose to compact
  - .2 0.8 – 1.8m: silty medium to fine sand (grey), trace to some shells, compacted
  - .3 1.8 – 2.4m: some gravel dense with depth
- .5 This dredging area had been sampled and analysed in 2015. The analytical results indicated that, for some of the materials, Polycyclic Aromatic Hydrocarbons (PAH), metals and Polychlorinated Biphenyls (PCBs) are below Environmental Canada's Ocean Disposal Screening level. The remaining material is above Environmental Canada's Ocean Disposal Screening level and requires upland disposal.

- .6 The Contractor is responsible for transporting the dredge material to the disposal site. The transportation and handling of the dredge material should be compliant with, but not limited to safety and environmental requirements under all associated permits and approvals.
- .7 Metals, wood and recyclable materials, if any, removed during the dredging activities must be diverted appropriate recycling facilities.

## **1.7 SCHEDULING**

- .1 Submit to Departmental Representative within three (3) weeks after award of Contract, schedule of work including time periods during which each operation involved in Work will be undertaken. At time of submission of schedule, meet with Departmental Representative to review schedule.
- .2 Adhere to schedule and take immediate action to correct any slippage by effectively altering existing dredging operations or mobilizing other equipment. Notify Departmental Representative of corrective action to be taken.

## **1.8 LOCATION**

- .1 Work comprises dredging of areas as indicated in contract drawings.

## **1.9 INTERFERENCE TO NAVIGATION**

- .1 Be familiar with vessel movements and fishery activities in area affected by dredging operations. Plan and execute Work in manner that will not interfere with fishing operations, marina operations, construction activities at wharf sites, or access to wharves by land or water.
- .2 Departmental Representative will not be responsible for loss of time, equipment, material or any other cost related to interference with moored vessels in harbour or due to other Contractor's operations.
- .3 Keep Harbour Manager, Canadian Coast Guard, and Fisheries and Oceans informed of dredging operations in order that necessary Notices to Mariners will be issued.

## **1.10 DATUM, WATER GAUGES AND TARGETS**

- .1 Elevations used in this specification and contract drawings are in metres referred to Chart Datum derived from Canadian Hydrographic Services.
- .2 Areas to be dredged are to be referenced to vertical bench marks for each location of dredging as indicated.

## **1.11 FLOATING PLANT**

- .1 Dredges or other floating plants to be employed on this Work, to be of Canadian registry, make or manufacture, or, must receive certificate of qualification from Industry Canada, Marine Directorate and this certificate should be ready for submission if requested.

**1.12 INSPECTION OF SITE**

- .1 Contractor is advised to be thoroughly familiar with extent and nature of Work and conditions affecting Work before tendering.

**1.13 SITE INFORMATION**

- .1 Results of prior soundings and general geological/biophysical information are made available for reference only. It should be noted that this information may differ from the current site condition. Take this into consideration when submitting tender.
- .2 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.

**1.14 SURVEY REQUIREMENTS**

- .1 The Departmental Representative will provide pre and post dredging survey for quality control and payment purposes; however, the Contractor is responsible for intermediate survey at their own cost to assess project progress and performance for their reference.

**1.15 SURVEYS AND ACCEPTANCE OF WORK**

- .1 Pre-dredge survey of all dredge area locations was provided by Departmental Representative and used in reference to contract drawings in the tender. Survey was conducted by electronic survey equipment sounding in instantaneous mode. Survey plan at 1:300 scale plotting average of instantaneous depths obtained in this survey define actual pre-dredge seabed areas.
- .2 No area will be dredged prior to Departmental Representative and Contractor's mutual acceptance of pre-dredge survey for that area.
- .3 Post-dredge survey will be undertaken by Departmental Representative upon completion of dredging indicated by the Contractor. Survey will confirm if dredging is completed as specified and whether area can be considered cleared area. Survey will be conducted in accordance with the "Canadian Hydrographic Survey Standards".
- .4 Contractor to re-dredge as necessary to remove all material within dredge areas which is found to be above design dredge depth of -3.5m with an approved sub-grade of -4.0m.
- .5 Additional survey will be undertaken at Contractor's cost, for those areas not meeting acceptance criteria for dredging. All additional surveys required to clear areas will be undertaken at Contractor's cost.
- .6 Departmental Representative will take average of instantaneous soundings simultaneously with least of minimum soundings.
- .7 All elevations obtained within specified areas of dredging must be at or deeper than the specified dredge elevation within tolerance before area will be considered completed.

**Part 2 Products**

**2.1 DREDGING EQUIPMENT**

- .1 Contractor to determine required equipment necessary to dredge material specified and to dispose of dredged material at the proposed and approved locations.

**Part 3 Execution**

**3.1 GENERAL**

- .1 Mark floating equipment with lights in accordance with International Rules of Road and maintain radio watch on board.
- .2 Place and maintain buoys, markers and lights required to define work and disposal areas.
- .3 Lay out Work from bench marks and base lines established by Departmental Representative. Be responsible for accuracy of Work relative to established bench marks and baseline. Provide and maintain electronic position fixing and distance measuring equipment, laser transits and such other equipment as normally required for accurate dredging control.
- .4 Establish and maintain water level gauges or tide boards in order that proper depth of dredging can be determined. Locate gauges or tide boards so as to be clearly visible.
- .5 Establish and maintain on-land targets for location and definition of designated dredge area limits. Targets to be suitable for control of dredging operations and locating soundings. Remove targets on completion of Work.
- .6 SPEC NOTE: List areas and grade depths.
- .7 The total dredge volume is estimated to be approximately 35,000 cubic meter to grade depth of EL -3.5m with an approved sub-grade of -4.0m. Approximately 25,000m<sup>3</sup> is below Environmental Canada's Ocean Disposal Screening level. Approximately 10,000m<sup>3</sup> is above Environmental Canada's Ocean Disposal Screening level and requires upland disposal.
- .8 Dredge side slopes to two (2) horizontal to one (1) vertical.
- .9 Remove materials above specified grade depths, within limits indicated. Material removed from below subgrade depth or outside specified area or side slope is not part of Work.
- .10 Remove shoaling which occurs as result of Work at no expense to Departmental Representative.
- .11 Remove material cast-over on surrounding area and dispose of it as dredged material. Do not cast-over material unless authorized by Departmental Representative.
- .12 Remove infilling in dredge areas which occurs prior to acceptance by Departmental Representative.

- .13 Immediately notify Departmental Representative upon encountering object which might be classified as obstruction. By-pass object after clearly marking its location and continue Work.

### **3.2 DISPOSAL OF DREDGED MATERIAL**

- .1 Refer to clause 1.6 of Section 35 20 23.

### **3.3 DREDGING IN VICINITY OF STRUCTURES**

- .1 Do not dredge material from areas lying within 5 m of existing structure unless authorized by Departmental Representative.
- .2 Contractor is responsible to check and clear the dredge area from any underwater structures, including but not limited to mooring lines, anchor blocks, and piles.

### **3.4 SWEEPING**

- .1 Sweep dredged areas on completion of dredging to confirm that grade depth has been achieved.
- .2 If, as result of incomplete Work, additional verification of depths by sounding or sweeping becomes necessary, additional costs involved shall be paid by Contractor.

### **3.5 RE-DREDGING**

- .1 The Contractor is responsible for re-dredging unsatisfactory Work at own cost and verify depths with additional sounding or sweeping to approval of Departmental Representative.

### **3.6 CO-OPERATION AND ASSISTANCE TO ENGINEER**

- .1 Co-operate with Departmental Representative on inspection of Work and provide assistance requested.
- .2 On request of Departmental Representative, furnish use of such boats, equipment, labour and materials forming ordinary and usual part of dredging plant as may be reasonably necessary to inspect and supervise Work. Volume of material transported in partially filled scows will be determined by Departmental Representative.

**END OF SECTION**