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PART 1 - GENERAL

1.1 Definitions

- .1 Dredging: excavating, transporting and disposing of underwater materials.
- .2 Material: loose or shale rock, silt, sand, quick sand, mud, shingle, gravel, clay and sand, gumbo, boulders, hardpan, debris, solid rock or boulders greater than 3 cubic meters.
- .3 Debris: pieces of wood, wood chips, bark, logs, submerged logs, tree branches, scrap vehicle tires, concrete, steel cable, steel chain, wire rope, scrap steel, etc.
- .4 Removal limit: plane above which all material is to be dredged.
- .5 Estimated Quantity: volume of material calculated to be above dredge grade and within side slopes, unless otherwise specified.
- .6 Sideslope: inclined surface or plane from grade at side limit of removal limit to intersect original ground line outside of side limit and to be expressed as a ratio of horizontal to vertical. All material above side slopes is to be dredged.
- .7 Chart Datum: by international agreement, a plane below which the tide will seldom fall. The Canadian Hydrographic Services has adopted the plane of Lowest Normal Tide (LNT) as Chart Datum. As the rise, fall and ranges of tides varies daily, The Canadian Hydrographic Services should be consulted for tidal prediction and other tidal information relating to the work.

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- 1.2 Description of Work
- .1 Work under this section covers the following:
    - .1 Dredging of material to the removal limits as shown on the drawings for the placement of new rock mattress for cribwork structure 401.
    - .2 The exact bottom elevations of the existing structure is unknown. Material below and outside the limits of the existing crib structure encountered during removal will be considered dredging.
- 1.3 Related Work
- .1 Refer to Environmental Protection Procedures for Marine Work - Section 01 35 44 for related information.
  - .2 Refer to Section 01 33 00 for Shop Drawing/Submission requirements.
- 1.5 Submissions
- .1 Certificates:
    - .1 Provide copies of all permits and licenses required to carry out the work.
  - .2 Methodology:
    - .1 Provide methodology for carrying out the work.
  - .3 Provide submissions in accordance with Section 01 33 00.
- 1.6 Schedule of Work
- .1 Submit to *Departmental Representative* within 2 weeks after award of contract, a schedule of work including time periods during which each operation involved in work will be undertaken.
- 1.7 Interference to Navigation
- .1 Be familiar with vessel movements and fishery activities in area affected by dredging operations. Plan and execute work in a manner that will not unnecessarily impede navigation and fishing operations
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- including movement of vessels at adjacent structures.
- .2 Keep Canadian Coast Guard informed of dredging operations in order that necessary Notices to Shipping will be issued.
- 1.8 Requirements of Regulatory Agencies
- .1 Comply with municipal, provincial and national codes and regulations relating to project.
- .2 Mark floating equipment with lights in accordance with Regulations for the Prevention of Collisions, as required by Transport Canada.
- 1.9 Datum, Water Gauges and Targets
- .1 All elevations used in this specification and contract drawings are in metres referred to Chart Datum.
- 1.10 Equipment
- .1 Determine the equipment required to dredge the area and material specified.
- 1.11 Site Information
- .1 Results of prior soundings, soil borings and soil investigations may be available for inspection at offices of Public Works and Government Services Canada, P.O. Box 2247, 1713 Bedford Row 2nd Floor, Halifax, N.S. B3J 3C9
- .2 Results of most recent soundings are included with the drawings. This data is made available for tendering purposes only. It should be noted that this information may differ from present site conditions.
- .3 The Contractor will be responsible for making his own interpretation of soil conditions at any location, other than borehole locations. Borehole descriptions shown on the logs are only descriptive of conditions at locations described by boreholes themselves.
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1.14 Measurement for  
Payment

- .1 Dredging and site preparation will not be measured separately but included in the lump sum price for demolition and removals
- .3 There will be no additional payment for delays incurred as a result of weather conditions.
- .4 There will be no additional payment for delays caused by vessel traffic in and out of the harbour.
- .5 There will be no additional payment for down time.
- .6 The Contractor will adhere to the schedule and take immediate action to correct any shortfall, by effectively altering existing dredging operations or mobilizing other equipment. The *Departmental Representative* is to be notified of the corrective action to be taken.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.1 General

- .1 Mark floating equipment with lights in accordance with International Rules of Road and maintain a radio watch on board.
- .2 Lay out work from bench marks and base lines established by *Departmental Representative*. Be responsible for accuracy of work relative to established bench marks. Provide and maintain electronic position fixing and distance measuring equipment, laser transits and such other equipment as normally required for accurate dredging control.

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- .3 Establish and maintain water level gauges in order that proper depth of dredging can be determined. Locate gauges so as to be clearly visible.
  - .4 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.
  - .5 Dredge area to the removal limits depths indicated on the drawings.
  - .6 Dredging is to take place during the time periods indicated in these specifications.
  - .7 Dredge side slope to allow material to freely fall inwards to form natural side slope.
  - .8 Use extreme caution when dredging adjacent to existing structures. Damages are to be repaired at contractor's expense.
  - .9 Remove materials above specified grade depths, within limits indicated. Material removed from below grade depth or outside specified area or side slope is not part of work.
  - .10 Remove shoaling which occurs as a result of work. Once dredged, maintain dredged area at grade.
  - .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 Immediately notify *Departmental Representative* upon encountering an object which might be classified as an obstruction. By-pass the object after clearly marking its location and continue work.
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.13 It will be the Contractor's responsibility to gain access to the dredge area. The construction of causeways, roads, etc., will be at the Contractor's expense and will be removed at the completion of the project. Any derricks, power lines, etc., which will require removal will be done so at the Contractor's expense and will be replaced to satisfaction of the *Departmental Representative*. Contractor to advise *Departmental Representative* of his proposed method to carry out dredging and disposal of the material.

3.2 Disposal of  
Material

.1 Refer to Environmental Protection Procedures for Marine Work - Section 01 35 44 for related information.

The Contractor shall dispose of dredged material by depositing in the disposal area of Falls Point Small Craft Harbour and in such a manner as approved by *Departmental Representative*.

.2 All materials deposited on private or public roads or properties in vicinity of site or as a result of trucking material to dump site will be removed by Contractor to satisfaction of owners involved at no additional cost to Department.

.3 Unless directed otherwise by *Departmental Representative*, dispose of all dredged material off department property to the satisfaction of the *Departmental Representative*.

.4 The contractor shall ensure that trucks used in the transportation of spoils are roadworthy and have tight fitting gates to prevent spoils spills on the road. Trucks not meeting this criteria may be removed from the project by the Department Representative.

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- .5 Clean truck boxes and wheels of dredge spoils before moving onto provincial roads. Vehicle wash down stations may be required at both the loading and offloading sites to ensure the above requirements are met.
- 3.3 Final Dredge Grade
- .1 The Contractor is to verify the removal limit in the dredged area by an acceptable method.
- .2 Inspect area where cribwork wharf is to be placed using divers and determine that required grade has been reached. Sound this area and record elevations.
- .3 If, as a result of incomplete work, additional verification of depths by sounding or sweeping becomes necessary, additional costs involved shall be paid by Contractor.
- .4 Dredge area to removal limit specified as shown on the drawings. Material removed from outside specified limits is not considered part of work and will not be measured for payment.
- 3.4 Co-operation and work assistance to Departmental Representative
- .1 Co-operate with *Departmental Representative* for inspection of and 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.
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PART 1 - GENERAL

- 1.1 Description of Work
- .1 This section specifies requirements for the following items:
    - .1 Ladders
    - .2 Mooring cleats
    - .3 Fenders
- 1.2 Reference Standards
- .1 ASTM A307-14 (or latest edition), Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
  - .2 CAN/CSA-G40.21-13 (or latest edition), Structural Quality Steels.
  - .3 CAN/CSA-G164-M92 (or latest edition) - Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .4 ASTM A48-03 (R2012 or latest edition), Gray Iron Castings
  - .5 ASTM A123-15, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .6 CAN/CSA W47.1-09 (R2014), Certification of Companies for Fusion Welding Steel.
- 1.3 Related Work
- .1 Refer to other Specification Sections for related information.
  - .2 Refer to Section 01 33 00 for Shop Drawing/Submissions requirements.
- 1.4 Submissions
- .1 Shop Drawings:
    - .1 Clearly indicate the following items:
      - .1 General arrangements, dimensions, clearance locations and directions of assemblies as installed on structures.
      - .2 Locations, sizes and installation tolerances of anchor bolts, eye bolts and embedded parts.
      - .3 Types of materials used, finishes and core thickness.
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- .4 All other pertinent details and accessories.
  - .2 Product Data/Samples:
    - .1 Provide product data and manufacturers brochures for the mooring cleats.
  - .3 Test Results:
    - .1 Provide test results for the galvanized items.
  - .4 Submissions
    - .1 Provide submissions in accordance with Section 01 33 00.
- 1.5 Measurement for Payment
- .1 Ladders, including timber, rungs, and fasteners will be measured in accordance with Section 01 29 00.
  - .2 Mooring cleats, including fastenings, will be measured in accordance with Section 01 29 00.
  - .3 Fenders, including fastenings, will be measured in accordance with Section 01 29 00.

PART 2 - PRODUCTS

- 2.1 Materials
- .1 Timber: Any timber supplied by Contractor must conform to Section 06 05 73 Dimension Timber.
  - .2 Hardware and miscellaneous items must meet the following specifications:
    - .1 Machine bolts, lag bolts, drift bolts, anchor bolts, nuts, washers to ASTM A307.
    - .2 Steel plates, ladder rungs, holdfasts and miscellaneous steel: to CSA G40.21, Grade 300W.
    - .3 Mooring cleats: new type "B1" mooring cleats.
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- .4 Do not use items manufactured or fabricated from scrap steel of unknown chemical composition or physical properties.
- .5 Hot dip galvanize bolts, anchor bolts, nuts, washers, pip sleeves, steel plates, rungs, holdfasts U-bolts and any other miscellaneous steel to CSA G164 with minimum zinc coating of 600 g/m<sup>2</sup>.
- .6 The material requirements for installation of light poles are given in the electrical sections/drawings.
- .7 Weld quality and workmanship shall comply with CSA standard W47.1 and W59. Welders to be certified by Canadian Welding Bureau.

PART 3 - EXECUTION

3.1 Ladders

- .1 Assemble ladder units and install completed units in locations shown on plan or as indicated by *Departmental Representative*.
- .2 Countersink bolts on exterior face of ladder.
- .3 Apply preservative to areas of unprotected wood exposed during course of work in accordance with Section 06 05 73.
- .4 Ladder upright joint design capacities are as follows, unless specified otherwise:
  - .1 Tension members: 50% of member maximum capacity.
  - .2 Shear members: 50% of member maximum capacity.
  - .3 Compression members:
    - .1 Grind member flush, fillet weld (min 5mm) all around, 60% of member thickness.
    - .2 Complete penetration weld.

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- .5 Ladder upright shop drawing required.
- 3.2 Mooring Cleats .1 Install mooring cleats as shown on drawings and fasten to concrete deck and curb using anchor bolts as indicated. Allow for 25 mm of grout under base.
- .2 Do not make alternations to any components without written permission of *Departmental Representative*.
- 3.3 Crib Fenders .1 Fasten treated timber fenders to timber cribwork as shown on drawings.
- .2 Bevel top of each fender to 4 horizontal to 1 vertical, and bottom of each is to extend 300 mm below chart datum. Treat tops per Section 06 05 73.
- .3 Countersink bolts on exterior face of fenders.
- 3.4 Installation General .1 Boreholes for drift bolts to be 1.5mm smaller in diameter than bolt and for full length of bolt. Boreholes for machine bolts to be same diameter as bolts. Boreholes for lag bolts to be same diameter as shank for unthreaded portion and 0.70 times the shank diameter for the threaded portion. Threaded portion of lag bolts will be installed using a wrench, not by driving.
- .2 Contain all debris and leachates (films on water surface) within the area of the work by using containment facilities such as floating booms or scree
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