

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Section 02 41 16 - Structure Demolition.
- .3 Section 31 53 13 - Timber Cribwork.

1.2 DESCRIPTION

- .1 This specification section includes requirements for dredging as noted on the drawings. There will be no distinction between Class "A" and Class "B" dredging in this contract. Measurement and payment for dredging will only be made in the area identified for dredging in the contract drawings. No measurement or payment will be made for dredging required to install the cribwork as detailed on the contract drawings.

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 of 1.5 m³ 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 m³.

- .4 Obstructions: material other than Class "A", having individual volumes of 1.5 m³ or more.
- .5 Measurements:
 - .1 CPM: cubic metres place measurement at dredging site.
- .6 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete, and/or other waste materials.
- .7 Grade: plane above which material is to be dredged.
- .8 Estimated quantity:
 - .1 Volume of material calculated to be above grade and within specified side slopes unless otherwise specified.
- .9 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.
- .10 Chart Datum: Permanently established plane from which soundings or tide heights are referenced, usually Lowest Normal Tide (L.N.T.).
- .11 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.
- .12 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.
- .13 Least of Minimum Plan: Hydrographic survey plan in which least sounding in grouping of matrix blocks is plotted.
- .14 Instantaneous Mode: Mode of operation of hydrographic survey equipment where only sounding observed at predetermined distance interval is retained in memory.
- .15 Average of Instantaneous Plan: Hydrographic survey plan in which average sounding in appropriate grouping of matrix blocks is plotted.
- .16 Lowest Normal Tide (L.N.T.): Plane so low that tide will seldom fall below it.

- .17 Cleared Area: Area of dredging accepted as achieving the required grade and verified by a DFO/SCH survey.

1.4 SUBMITTALS

- .1 Submit to Departmental Representative for approval, four (4) weeks before blasting, details of proposed blasting operations showing types and quantities of explosives, loading charges and patterns, type of blasting caps, blasting techniques, blast protection measures, time of blasting, and other pertinent details. Submit subsequent changes to Department Representative before proceeding.
- .2 Submit to Department Representative complete photographic and descriptive record of buildings, roads, and structures in general area of Project Work, before blasting is started. Describe buildings both inside and out. Record existing cracks in walls or structural components.

1.5 REGULATORY REQUIREMENTS

- .1 There are strict environmental procedures that must be followed during the Work.
- .2 Comply with municipal, provincial, and national codes and regulations relating to project.
- .3 Mark floating equipment with lights in accordance with the

provisions of the Canada
Shipping Act Collision
Regulations and Notices to
Mariners.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Contaminated sediments must be disposed of as required by Authorities having jurisdiction.
- .3 Metals, wood, and recyclable materials removed during the dredging activities must be diverted to appropriate recycling facilities.

1.7 SCHEDULE

- .1 Submit to Departmental Representative, within two (2) weeks after acceptance of bid, 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 on the 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, marine operations, or construction activities at wharf site, 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 another Contractor's operations.
- .3 Keep Marine Communications and Traffic Services Centre(s) and Department of 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 in Contract Documentation are in metres referred to Canadian Hydrographic Services Survey datum.
- .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, Aerospace, Defense and Marine Branch, and this certificate is to accompany bid submission.

- .2 Requests for certification in format of form PWGSC-TPSGC 2843 (06/2007) attached to the Bid and Acceptance Form to be directed to Mr. Emile Rochon, Aerospace, Defence and Marine Branch, Industry Canada, CD Howe Building - Room 733C, 235 Queen Street, Ottawa, Ontario, K1A 0H5, and to be received there not less than fourteen (14) days prior to bid closing.

1.12 INSPECTION OF SITE

- .1 Contractor to visit site of Work and become thoroughly familiar with extent and nature of Work and conditions affecting Work before bidding.
- .2 The Contractor will be responsible for making their own interpretation of soil conditions.

1.13 SITE INFORMATION

- .1 Results of most recent soundings Survey are included on the drawings. This data will be used for all calculations for quantity purposes. If the contractor wishes to perform own survey, a written notice must be submitted to the Departmental Representative at least seven (7) days notice so

DFO/SCH can verify the sounding survey before the commencement of any Work.

- .2 Results of prior soundings are made available for bidding purposes only. It should be noted that this information may differ from site condition. Take this into consideration when submitting bid.
- .3 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.

1.14 SURVEY REQUIREMENTS

- .1 Dredging plant used for Work to be of sufficient capacity and in good operating condition to satisfactory complete Work within time schedule and in accordance with specifications.
- .2 Provide, at own expense, survey vessel, equipment, and crew as required to set up and maintain control for location of dredge limits and to sound areas immediately after dredging to verify grade depths have been attained. Areas are to be sounded at a minimum 1 x 1 m UTM grid to approval of Departmental Representative.

1.15 SURVEYS AND ACCEPTANCE OF WORK

- .1 As soon as practical after acceptance of bid, Contractor has seven (7) days to accept sounding survey in contract. If any differences are found, Departmental Representative will complete new pre-dredge survey

of all dredge area locations within seven (7) days of the request. Survey will be by electronic survey equipment sounding in instantaneous mode. Survey plan at 1:250 scale plotting average of instantaneous depths obtained in this survey will define actual pre-dredge seabed areas.

- .2 No area will be dredged prior to Departmental Representative's 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. Survey will confirm if dredging is completed as specified and whether area can be considered cleared area. Survey will be by electronic sweep equipment. Survey plan at 1:250 plotting least of minimum depths obtained in this survey will identify areas requiring reworking to obtain following elevations using least of minimum mode.
- .4 Contractor to re-dredge as necessary to remove all material within dredge areas and any additional areas where soundings differ from the pre-dredged survey which are found to be above grade using the least of minimum mode elevations as specified herein.
- .5 One additional survey will be undertaken at Departmental

Representative's cost for those areas not meeting acceptance criteria for dredging. All additional surveys required to clear areas will be undertaken by the Departmental Representative at Contractor's cost.

- .6 Departmental Representative will take average of instantaneous soundings simultaneously with least of minimum soundings.
- .7 All elevations obtained in minimum mode within specified areas of dredging must be at or deeper than specific dredge depth before area will be considered completed.

1.16 MEASUREMENT FOR PAYMENT

- .1 Only material excavated above grade plane and within side slopes indicated or specified will be measured.
- .2 Dredging: Will be measured in CMPM (Cubic Metres Place-Measure) determined from existing seabed elevation established from the current sounding survey down to depths and specified limits as indicated on the drawings. Quantities will be determined from a sounding survey performed by the DFO/SCH Survey Crew after dredging survey is completed by using electronic sounding and DGPS positioning equipment. The Departmental Representative will verify that the Contractor has performed dredging down to depths and specified limits

indicated on the drawings. No payment will be made for over-dredging. DFO/SCH will conduct an interim and final survey. The Contractor will formally request at least seven (7) days in advance that the final after-dredging survey be performed upon completion of dredging. The timing of the survey may be dependent on weather and other circumstances. If the survey and inspection show that all material has not been removed, the Contractor is to re-dredge as necessary. The Contractor will perform a sounding survey, using a method approved by the Departmental Representative, to verify that the specified dredge depth has been obtained. The Departmental Representative will then perform a third survey for final verification of dredge depths and limits. This third sounding survey and any subsequent surveys will be at the cost of the Contractor.

- .3 Dredge limit slopes shown for measurement for payment purposes only. Contractor to dredge in such a manner as to ensure stability of slopes prior to and during crib construction. The Contractor is cautioned to make their own assessment of volume of material that may have to be removed outside the pay limits shown on the drawings, as there will be no additional payment for dredging outside the pay limits on the drawings.
- .4 Rock fill or rock mattress

material required to compensate for excessive removal of material will not be measured.

- .5 All operations in connection with the field positioning of dredging equipment will be considered incidental to the Work and will not be measured separately for payment.
- .6 There will be no additional payment for the Contractor's survey vessel, equipment, and crew or diving services.
- .7 There will be no additional payment for delays and/or downtime caused by vessel traffic, fishery operations, marine operations, or during periods when no dredging is permitted. Contractor should contact the Harbour Authority to determine schedules of operations.
- .8 The contractor will be responsible for levelling and cleaning up of the disposal site after all the material has been disposed of and there will be no additional payment.
- .9 Removal of infilling material will not be measured for payment.
- .10 No separate payment will be made for sweeping.
- .11 There will be no additional payment for mobilization and demobilization of dredging equipment.

- .12 Contractor to obtain and supply Departmental Representative with all applicable approvals for proposed dredge material disposal site prior to starting any dredging.
- .13 Payment will include disposal of dredge material to appropriate soil disposal facility as approved by the Departmental Representative.
- .14 Payment will include disposal of contaminated dredge material to appropriate contaminated soil disposal facility as approved by the Departmental Representative.

PART 2 - PRODUCTS

2.1 DREDGING EQUIPMENT

- .1 Contractor to determine required equipment necessary to dredge material specified and to dispose of dredged material to an approved landfill site.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Mark floating equipment with lights in accordance with the provisions of the Canada Shipping Act Collision Regulations 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 control points and baselines 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 transit, and such other equipment as normally required for accurate dredging control.

- .4 Establish and maintain water level gauges tide boards in order that proper depth of dredging can be determined. Locate gauges 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 Dredge shaded areas to grade depths indicated on drawings.
- .7 Dredge side slopes to 1.5 horizontal to one vertical in Class B material.
- .8 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.
- .9 Remove shoaling which occurs as result of Work at no expense to Canada.

- .10 Remove material cast-over on surrounding area and dispose of it as dredged material. Do not cast-over material unless authorized by Departmental Representative.
- .11 Remove infilling in dredge areas which occurs prior to acceptance by Departmental Representative.
- .12 Immediately notify Departmental Representative upon encountering object which might be classified as obstruction. By-pass object after clearly marking its location and continue Work.
- .13 No dredging will be permitted from the existing wharf unless it is adequately protected from equipment track damage to the satisfaction of the Departmental Representative.

3.2 CLASS 'A' REMOVAL

- .1 Provide specialist with qualifications acceptable to Departmental Representative and Municipal or Provincial Authorities to programme and supervise blasting.

3.3 DISPOSAL OF DREDGED MATERIAL

- .1 Dredged material to be disposed of in an approved disposal site. Trucks used to haul dredged material must have water tight boxes. Contact local municipal authorities prior to disposal operations. Contractor is responsible for obtaining dumping permit and for payment of dumping permit fee.

- .2 Dispose of all dredged material by depositing it in the disposal area in such a manner as approved by the Departmental Representative and conforming to municipal requirements.
- .3 Any blasted rock, boulders, or fill in the dredged limits will be disposed of as directed by the Departmental Representative.

3.4 DREDGING IN VICINITY OF STRUCTURES

- .1 Do not dredge material from areas lying within 1m of existing structure unless authorized by Departmental Representative.

3.5 SWEEPING

- .1 Sweep dredged areas on completion of dredging to confirm that grade depth has been achieved.
- .2 Sweeping equipment to consist of heavy steel beam suspended from scow or any necessary equipment to sweep at required grade depth or other approved method. Beam to be capable of adjustment and calibration and approved by Departmental Representative.
- .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.

3.6 RE-DREDGING

- .1 Re-dredge unsatisfactory Work and verify depths with additional soundings or sweeping

to the approval of Departmental Representative.

3.7 CO-OPERATION WITH
AND ASSISTANCE TO
DEPARTMENTAL
REPRESENTATIVE

- .1 Co-operate with Departmental Representative with respect to inspection of Work, and provide assistance as requested.
- .2 Upon request from 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