PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies the general requirements and execution for dredging, including the removal and disposal of dredged materials as indicated on the drawings.

.2 The dredging limits, both horizontal and vertical, are as shown on the drawings.

1.2 RELATED SECTIONS

.1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Section 02 41 16 - Sitework, Demolition and Removal.

.3 Section 31 53 13 - Timber Cribwork.

.4 Section 31 36 19 - Rock Mattress.

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 5m³ 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 5 m³.

.4 Obstructions: material other than Class A, having individual volumes of 5m³ or more.

.5 CMPM: cubic metres 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/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.

.2 Areas in square metres of material calculated horizontally to exist above grade and within dredge limits, unless otherwise specified.

PART 1 - GENERAL (CONT'D)

1.3 DEFINITIONS (CONT'D)

.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 (LNT).

.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 Matrix Block: each dredge area is presented as number of 1.2 x 3.0 m long blocks. Dependent on position of sounding, block may have 0 to 4 soundings contained within it.

.14 Least of Minimum Plan: hydrographic survey plan in which least sounding in grouping of matrix blocks is plotted.

.15 Instanteous Mode: mode of operation of hydrographic survey equipment where only sounding observed at predetermined distance interval is retained in memory.

.16 Average of Instanteous Plan: hydrographic survey plan in which average sounding in appropriate grouping of matrix blocks is plotted.

.17 Lowest Normal Tide (LNT): plane so low that tide will seldom fall below it.

.18 Cleared Area: area of dredging accepted as achieving the required grade and verified by a PWGSC survey.

1.4 REGULATORY REQUIREMENTS

.1 There are strict environmental procedures that must be followed during the Work.

PART 1 - GENERAL (CONT'D)

1.4 REGULATORY REQUIREMENTS (CONT'D)

.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.

1.5 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.

1.6 SCHEDULING

.1 Submit to Departmental Representative, within 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.

1.7 LOCATION

.1 Work comprises dredging of areas as indicated on the drawings.

1.8 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 and construction activities at wharf site, or access to wharves by land or water.

PART 1 - GENERAL (CONT'D)

1.8 INTERFERENCE TO NAVIGATION (CONT'D)

.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 the Marine Communications and Traffic Services' Centre, Fisheries and Oceans Canada, informed of dredging operations in order that necessary Notices to Mariners will be issued.

.4 To minimize disruption to the fish processing plant and vessel traffic, the demolition and new work shall be split up into two (2) separate phases. This will allow vessels to access the plant for offloading products and provide some berthage space during construction. Phase 1 will involve the construction of new finger pier wharf "B" as outlined on the drawings. This will include partial demolition of the existing finger pier wharf structures, #403(S) and #412(S), full demolition of structure #404(S), and partial demolition of the marginal wharf structure #411(S), as per the approximate limits indicated. Electrical power to remain intact and active on all structures within the phase 2 area during phase 1 construction. Phase 1 construction shall include new electrical shed and active power to all fixtures prior to start of work on Phase 2 and subsequent disconnection of power for Phase 2. Upon full completion of Phase 1 work, construction can proceed on Phase 2. Phase 2 includes the construction of new finger pier wharf "A" as outlined on the drawings. This will include the remaining demolition of the existing finger pier structure #403(S) to the approximate limits indicated and a portion of the marginal wharf structure #407(S) as per the approximate limits indicated on the drawings. All other work not specifically identified within Phase 1 or 2 shall be coordinated during construction with site users and approved by the Departmental Representative.

.5 The contractor will be responsible for working closely with the Harbour Authority in arranging vessel movement. Certain areas may have to be dredged first to accommodate vessels moored in the harbour. The Contractor will be responsible for arranging the removal and reinstallation of the floating docks.

1.9 DATUM, WATER GAUGES AND TARGETS

.1 Elevations used in this specification and contract drawings 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.

PART 1 - GENERAL
(CONT'D)

1.10 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, Defence and Marine Branch and this certificate 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 14 days prior to bid closing.

1.11 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. Contractor is to note that this location is very exposed and dredging operations will be limited due to weather.

.2 The Contractor will be responsible for making his own interpretation of soil conditions at any location, other than locations for which subsurface conditions are provided.

.3 The Contractor shall take the necessary steps to become fully familiar with potential inclement weather conditions in this area.

1.12 SITE INFORMATION

.1 Relevant geotechnical information logs are provided on the drawings and in the specification. Additional information pertaining to sub-surface conditions may be available by contacting the contracting officer for viewing by appointment.

.2 Results of most recent soundings 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 7 days notice) so PWGSC can verify the sounding survey before the commencement of any work.

.3 Results of prior soundings and geotechnical investigations 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.

PART 1 - GENERAL (CONT'D)

1.12 SITE INFORMATION (CONT'D)

.4 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.

1.13 SURVEY REQUIREMENTS

.1 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 has been attained. Areas are to be sounded at a minimum 1 x 1 m UTM grid to approval of Departmental Representative.

1.14 SURVEYS AND ACCEPTANCE OF WORK

.1 As soon as practical after acceptance of bid, Contractor has 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 7 days of the request. Survey will be by electronic survey equipment sounding in instantaneous mode. Survey plan at 1:500 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 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 specifed and whether area can be considered cleared area. Survey will be by electronic sweep equipment. Survey plan at 1:750 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 redredge as necessary to remove all material within dredge areas and any additional areas where soundings differ from the pre-dredged survey which is found to be above grade using the least of minimum mode elevations as specified herein.

.5 One additional survey will be undertaken at Canada'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.

PART 1 - GENERAL (CONT'D)

1.14 SURVEYS AND ACCEPTANCE OF WORK (CONT'D)

.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.

1.15 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 cubic metres, in-place measurement CMPM, determined from existing seabed elevation established from the current sounding survey down to depths and specified limits as indicated on the drawings with exception of that specified in Part 1.15.3 of this section. Quantities will be determined from a sounding survey preformed by the PWGSC Survey Crew after dredging survey is completed by using electronic sounding and DGPS positioning equipment. The Departmental Representative will verify that the Contractor has preformed dredging down to depths and specified limits indicated on the drawings. No payment will be made for over-dredging. PWGSC 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 preformed upon completion of dredging. The timing of the survey may be dependent on weather and other circumstances. If the survey and inspection shows that all material has not been removed, the Contractor is to re-dredge to as necessary. The Contractor will preform 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 preform 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 For measurement purposes, quantities included in this section will be all work not included in Section 02 41 16 or shown on sheet C-18 (existing site plan (pay limits included in demolition)). See sheet C-18 (New Site Plan) for clarification of dredge area.

.4 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.

PART 1 - GENERAL (CONT'D)

1.15 MEASUREMENT FOR PAYMENT (CONT'D)

.5 Rock fill or rock mattress material required to compensate for excessive removal of material will not be measured.

.6 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.

.7 There will be no additional payment for delays incurred during fishing seasons. Contractor should contact the Harbour Authority to determine schedule of operations.

.8 There will be no additional payment for the Contractor's survey vessel, equipment, and crew or diving services.

.9 There will be no additional payment for delays caused by vessel traffic.

.10 Payment will include disposal of dredge material, using water tight boxes at locations within 1 km of work site as directed by the Departmental Representative.

.11 There will be no additional payment for delays and/or downtime for vessel traffic, fishery operations, marine operations, during periods when no dredging is permitted. Contractor should contact the Harbour Authority to determine schedules of operations .

.12 The contractor will be responsible for levelling and cleaning up of the disposal site after all the material has been disposed and there will be no additional payment.

.13 There will be no additional payment for mobilization and demobilization of dredging equipment.

.14 Contractor to obtain and supply Departmental Representative with all applicable approvals for proposed dredge material disposal site prior to starting any dredging.

.15 Payment will include disposal of dredge material to appropriate soil disposal facility as approved by the Departmental Representative.

.16 Removal of infilling material will not be measured for payment.

.17 There will be no additional payment for the Contractor to remove and reinstate existing floating decks and anchoring system as necessary to carry out the dredging work. Coordinate removal and reinstallation with 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 transits and such other equipment as normally required for accurate dredging control.

.4 Establish and maintain water level gauges and/or tide boards in order that proper depth of dredging can be determined. Locate gauges and/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 Dredge as required to reach depths and limits indicated on the drawings, as approved by site inspector, or as indicated otherwise. Required final dredge depths to be agreed on with Departmental Representative.

.7 Remove materials above specified depths and limits indicated. Material removed from below depths and limits indicated or outside specified area is not part of Work.

.8 Remove shoaling which occurs as result of Work at no expense to Canada. Where shoaling occurs, Contractor to return the sea bottom elevations outside the footprint of the work to its original preconstruction elevations as determined by the pre-construction survey. This includes all areas over or near all dredge operation, excavation, and rock placement activities including barge work, dump scow routing to shore, temporary access infilling, transfer to shore operations as well as areas covered by silt plumes. As a minimum, sea bottom elevations will be compared by PWGSC after completion of Contractors work and their

PART 3 - EXECUTION (CONT'D

3.1 GENERAL (CONT'D)

.8 (cont'd)
confirmation of the above restoration for all areas within 15 meters of any of the above activities.

.9 Remove material cast-over on surrounding area and dispose of it as dredged material. Do not cast-over material unless authorized by Departmental Representative.

.10 Remove infilling in dredge areas which occurs prior to acceptance by Departmental Representative.

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

.12 Dredge side slopes to 1.5 horizontal to 1.0 vertical in Class B material, unless otherwise noted.

3.2 DISPOSAL OF DREDGED MATERIAL

.1 Dispose of all dredged material by depositing it at an approved (within 1 km) disposal site, and placing in such a manner as approved by the Departmental Representative and conforming to municipal, provincial and federal requirements.

.2 Trucks used to haul dredged material must have water tight boxes. Contractor is responsible for obtaining and payment of dumping permit fees if applicable.

3.3 DREDGING IN VICINITY OF STRUCTURES

.1 Dredging in the vicinity of existing structures may be required to facilitate construction of new structures. The contractor is solely responsible for protection of all existing structures and shall determine what measures need to be taken during construction activities.

.2 Suitable measures shall be taken by the Contractor to protect adjacent building structures and wharf structures.

PART 3 - EXECUTION (CONT'D

3.4 RE-DREDGING

.1 Re-dredge unsatisfactory work and verify depths with additional soundings or sweeping to approval of Departmental Representative.

3.5 CO-OPERATION AND ASSISTANCE TO DEPARTMENTAL REPRESENTATIVE

.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.

3.6 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.