
1 GENERAL

1.01 RELATED SECTIONS

- .1 Section 01 35 44 - Environmental Procedures
- .2 Section 01 35 29 - Health and Safety

1.02 PRICE AND PAYMENT PROCEDURES

- .1 Measurement for Payment for Mobilization and Demobilization will be paid under section 35 20 23.
 - .1 Cap Lumiere channel to be dredged by May 30 2021.
 - .2 St Edouard Channel to be dredged by July 20 2021.
 - .3 Caissie Cap Channel to be dredged by July 10 2021.
 - .4 Cap-Pele Channel to be dredged by July 20 2021.
 - .5 Barre de Cocagne to be dredged by July 20 2021.
- .2 Measurement and Payment for dredging will be paid by the Cubic Meters in-place measure (CMPM) to be completed with floating plant equipment for material dredged and disposed of at the ocean disposal site. Included but not limited to the following:
 - .1 All operations in connection with field positioning of dredging equipment will not be measured separately for payment. The contractor shall be equipped with a computerized system capable of accurately displaying on a monitor the location the dredge, its digging tool, the geographic coordinates, the dredge parameter limits and the bathymetric data as provided by the departmental representative.
 - .2 No separate payment will be made for Contractor's survey vessel, equipment and crew or diving services.
 - .3 Payment will include dredging and disposal of dredge material to the ocean disposal site which will be determined from soundings taken before, after completion of dredging, the Departmental Representative will clear the section to ensure proper depth has been achieved.
 - .1 For payment of quantities, the volume will be determined by taking the difference of elevations between the pre-dredge survey and the theoretical -1.8m elevation, within the individual dredge boxes.
 - .2 For the clearing of the work, soundings, inspection and measurement of seabed will be verified by Departmental Representative after completion of each site, to ensure grades have been achieved. The contractor will assist and no extra cost.
 - .3 No Separate payment for infilling of the dredged areas from natural events, should it occur.
 - .4 No additional payment for delays incurred during fishing season operations, moving off channel to accommodate fishing vessels, inclement weather, ice removal, or during periods when no dredging is permitted.
 - .5 No additional payment for downtime and for delays caused by vessel traffic.
 - .6 No additional payment for any accumulation of sea weeds and/or kelp which may hamper the dredging operation.

- .7 No additional payment for mooring facilities fees for dredge plant.
- .8 Dredging equipment used for removal of obstructions will be paid for at rate negotiated in advance and authorized in writing by Departmental Representative.

1.03 DEFINITIONS

- .1 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 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 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials.
 - .5 Obstructions: material other than class A, having individual volumes of 1.5 m³ or more.
 - .6 CMPM: cubic meters place measurement.
 - .7 Grade: plane above which material is to be dredged.
 - .8 Sub-grade: plane parallel to and 300 mm below grade.
 - .9 Estimated quantity:
 - .1 Volume of material calculated to be above sub-grade and within specified side slopes unless otherwise specified.
 - .2 Areas in square meters of material calculated horizontally to exist above grade and within dredge limits, 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 (LNT).
 - .12 Universal Transverse Mercator projection (UTM) or Modified Transverse Mercator Projection (MTM) Co-ordinates: plane rectangular coordinates used in grid system in which grid network is applied to UTM. or MTM. 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 Minimum Sounding: Shallowest depth recorded inside a matrix block. Soundings taken in this mode may be shallower than actual bottom elevations due to variations in water depths due to wave action.
 - .15 Average Sounding: The average depth of all the soundings recorded in a maxtrix block.
 - .16 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.

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

1.04 ADMINISTRATIVE REQUIREMENTS

- .1 Navigation co-ordination:
 - .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 harbor or due to other Contractor's operations.
 - .3 Keep District Manager, Canadian Coast Guard, Fisheries and Oceans, Harbor Authorities informed of dredging operations in order that necessary Notices to Mariners will be issued.
- .2 Scheduling:
 - .1 Submit to Departmental Representative within 2 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.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

1.06 QUALITY ASSURANCE

- .1 Regulatory agency sustainability approvals:
 - .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, requirements and directives of Queen's Harbour Master and Notice to Mariners.

- .2 Disposal of dredged material will be carried out in accordance with the terms and conditions set down in permits issued by Environment Canada pursuant to the Canadian Environmental Protection Act and Regulations there under.
- .3 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 to accompany Tender submission.
 - .2 Requests for certification to be directed to Director, Defense and Marine, Directorate, Industry Canada, 235 Queen Street, 7th Floor, East Tower, Ottawa, Ontario, K1A 0H5, and to be received there not less than 14 days prior to bid closing.

1.07 SITE CONDITIONS

- .1 Contractor to visit and inspect work site and become thoroughly familiar with extent and nature of Work and conditions affecting Work before tendering.
- .2 Results of prior soundings and geotechnical investigations are made available for tendering purposes only. It should be noted that this information may differ from site condition. Take this into consideration when submitting tender.
- .3 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.
- .4 Survey requirements:
 - .1 Provide, at own expense, survey vessel, equipment and crew to set up and maintain control for location of dredge limits and to sound areas immediately after dredging to verify that grade depth has been attained.
 - .2 Use Global Positioning System (GPS), differential corrected, instrumentation valid at 1.0 metre accuracy. The contractor is responsible to ensure GPS instrumentation is verified for accuracy every three months.
- .5 It is anticipated that the depth of water for the proposed sites (harbour and disposal sites) may not be suitable to allow a floating barge and scow.

2 PRODUCTS

2.01 DREDGING EQUIPMENT

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

3 EXECUTION

3.01 Dredge Area

- .1 The dredge area is indicated on the drawing and as specified herein. The location and orientation of the dredge area (channel) may be revised upon completion the soundings. The Departmental Representative will advise on the final channel and dredging location.

3.02 Dredge Grade

- .1 The dredge area is to be excavated to elevation 1.8 metres below Chart Datum (Elevation 0.00)

3.03 Dredge Volume

- .1 The volume for the disposal at sea dredging at the following locations:
 - .1 Cap Lumiere is 7,500 cubic meters place measure. This is an estimate only for the purposes of planning for environmental permits.
 - .2 St Edouard is 10,000 cubic meters place measure. This is an estimate only for the purposes of planning for environmental permits.
 - .3 Caissie Cap is 3,000 cubic meters place measure. This is an estimate only for the purposes of planning for environmental permits.
 - .4 Cap-Pele is 4,500 cubic meters place measure. This is an estimate only for the purposes of planning for environmental permits.
 - .5 Barre de Cocagne is 6,000 cubic meters place measure. This is an estimate only for the purposes of planning for environmental permits.
- .2 New bathymetry will be collected before the ocean disposal dredging of the work is to commence. The new data will part of the Contract plans and at this time the alignment of the channel will be finalized.

3.04 Work Schedule

- .1 Immediately upon award of contract, the Contractor will submit a schedule of work to the Departmental Representative, showing anticipated progress stages and final completion of work within time required by contract documents. All entries contained in unit price table will be entered on schedule using a horizontal bar graph method.
 - .1 Channel priorities will be:
 - .1 Cap Lumiere channel to be dredged 30m wide, to elevation -1.8m below chart datum by May 30 2021.
 - .2 St Edouard Channel to be dredged 30m wide, to elevation -1.8m below chart datum by July 20 2021.
 - .3 Caissie Cap Channel to be dredged 30m wide, to elevation -1.8m below chart datum by July 10 2021.

- .4 Cap-Pele Channel to be dredged 30m wide, to elevation -1.8m below chart datum by July 20 2021.
- .5 Barre de Cocagne Channel to be dredged 30m wide, to elevation -1.8m below chart datum by July 20 2021.

3.05 Surveys and acceptance of work

- .1 Pre-dredge hydrographic sounding plans will be completed as soon as ice is out of the straight. Channel alignment may be reassessed at time of mobilization.
- .2 As soon as practical after Contract award, Departmental Representative will complete pre-dredge survey of dredge area locations. Survey will be by electronic survey equipment sounding in instantaneous mode (minimum frequency of 200 kHz). Survey plan at 1:500 scale plotting average of instantaneous depths obtained in this survey will define actual pre-dredge seabed areas.
- .3 No area will be dredged prior to Departmental Representative's and Contractor's mutual acceptance of pre-dredge survey for that area.
- .4 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. This survey will identify areas requiring reworking to obtain following elevations using least of minimum mode: -1.80m below LNT.
- .5 Contractor to re-dredge as necessary to remove all material within dredge areas which is found to be above grade as specified herein.
- .6 One additional survey will be undertaken at Departmental Representative's cost, for those areas not meeting acceptance criteria for dredging. Additional surveys required to clear areas will be undertaken by Departmental Representative at Contractor's cost.
- .7 Departmental Representative will take average of instantaneous soundings simultaneously with least of minimum soundings.
- .8 All elevations obtained in minimum mode within specified areas of dredging must be at or deeper than -1.80m below LNT before area will be considered completed.

3.06 DREDGING

- .1 Mark floating equipment with lights in accordance with International Rules of Road and maintain radio watch on board.
- .2 Place and maintain buoys, ranges, markers and lights required to define work and disposal areas.
- .3 Lay out Work from bench marks, ranges and base lines established by Departmental Representative. Be responsible for accuracy of Work relative to established bench marks, ranges 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 Areas to be dredged are to be referenced to vertical bench marks for each location of dredging as indicated.
- .5 Chart datum for soundings indicated is above L.N.T.
- .6 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.

- .7 Dredge areas to grade depth of EL -1.8m below LNT.
- .8 Side slopes are to be dredge in a box cut.
- .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 and will not be measured for payment, unless it's authorized by the Departmental Representative.
- .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 Dispose of dredged material to the ocean disposal site in manner approved by Departmental Representative.
- .14 Immediately notify Departmental Representative upon encountering object which might be classified as obstruction. By-pass object after clearly marking its location and continue work.
- .15 Become familiar with fishery activity. Clearly mark dredging area(s), disposal area(s) and routes to and from dredging and disposal area, during periods when fishing gear is set in areas adjacent to dredging operations with "Cautionary Buoys", in accordance with Coast Guard Standard TP968-1984. All Buoys must be colored cautionary yellow - CGSB #505-108. The Contractor is responsible for all costs associated with the supply, installation and removal of all necessary temporary aids.
- .16 Execute the work to ensure damage does not occur to fishing gear and interference to fishing operations is minimized, by conducting operations within the areas so marked.
- .17 Be responsible for damage to fishing gear from dredging activities outside marked areas and, if damage occurs, assume responsibility for replacement or repair costs and cost of lost fishing opportunity.
- .18 Elevations used in this specification and contract drawings are in metres referred to Chart Datum.
- .19 Areas to be dredged are to be referenced to vertical bench marks for each location of dredging as indicated.

3.06 DREDGE DISPOSAL

- .1 Dredged materials from channel to be placed at ocean disposal sites, as shown on the plan.

3.07 SITE QUALITY CONTROL

- .1 Site test and inspections:
 - .1 Co-operate with Departmental Representative on inspection of Work and provide assistance requested.
 - .2 Upon request of Departmental Representative, furnish use of such boats, equipment, labor 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.

- .3 Contractor to ensure disposal site buoys and Global positioning system for the loading site are inspected and operational for the duration of dredging and disposal activities.

3.08 CLEANING

- .1 Leave Work area clean at end of each day.
- .2 Waste Management:
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
 - .2 Contaminated sediments must be disposed of in confined disposal facility or specified site.
 - .3 Metals, wood and recyclable materials removed during the dredging activities must be diverted appropriate recycling facilities.
 - .4 Dispose of dredged material by depositing in disposal areas indicated in manner approved by Departmental Representative.

END OF SECTION