

1 GENERAL

1.01 GENERAL DESCRIPTION

- .1 This section specifies requirements for side casting, excavating, transporting and disposing of Class "B" underwater materials at the ocean disposal site for Pigeon Hill's Fox Den Gully Channel, Gloucester County, NB. The work will consist of but not limited to side casting operations with the material placed to the south side of the channel in the spring, then in the summer excavating, transporting and disposing of excavated materials at the ocean disposal site located at 2.5Km's from the channel.
- .2 The dredge depth:
 - .1 Side casting in the spring; the work will consist of excavating the Class "B" underwater material to elevation -1.80m below Chart Datum or rock if encountered first. The material is to be side casted to the South side of the channel and leveled below low water mark upon completion.
 - .2 Excavating, transporting and Disposal at sea operations (disposal at sea site located at 2.5Km's from the channel) are to be done in the summer. The channel at Fox Den Gully is to be excavated to elevation -2.50m below Chart Datum or rock if encountered first. The channel is identified on the DWG's, but will be re aligned upon completion of the June/July bathymetry results.
- .3 The approximate volumes above grade based on the pre-dredge survey November 2020 for the Gully Dredging work are as follows:
 - .1 for side casting is 4,500 cubic meters or 75hrs.
 - .2 The volume for the disposal at sea dredging in the summer is 14 000 cubic meters place measure. This is an estimate only for the purposes of planning for environmental permits.
- .4 New bathymetry will be collected in the summer before the ocean disposal portion of the work is to commence. The new data will replace that which is shown on the Contract plans and at this time the alignment of the channel will be finalized.

1.02 RELATED SECTIONS

- .1 Section 01 35 43 - Environmental Procedures
- .2 Section 01 35 29 - Health and Safety

1.03 MEASUREMENT PROCEDURES

- .1 Only material excavated above grade plane and within dredge limits indicated or specified will be measured.
- .2 **Mobilization and Demobilization:** Mobilization and demobilization of the dredge(s), support vessels to be paid as a fixed lump sum payment covering all items of work. Half of the sum allocated for mobilization and demobilization, shall be payable upon commencement of dredging and the remainder shall be payable after project completion.
 - .1 Moving off the channel to accommodate fishing vessels is incidental to the work, and will not be measured.
 - .2 For the spring side casting, the contractor must be on site no later than 5 days after ice out or safe to navigate to the site. The side casting material must be placed below the lower low water to the South side of the channel. All side casting must be pre-approved by the Departmental Representative prior to commencing.
 - .3 The contractor must ensure the project timelines for the Ocean disposal site dredging are adhered to. Dredging cannot commence earlier than July 2021.
 - .4 Any remediation to prevent the possible transport of alien species from port to port will be included in the demobilization costs. See Environmental Procedures Section 01 35 43.
- .3 **Dredging Side Casting (Per Hour):** The measurement for payment for dredging is per Hour
 - .1 Per hour basis is based at a minimum rate of 50cmpm per hour of actual production of dredging within grades & limits identified. This includes the supply of all plant, equipment and labour to perform the dredging. The average of a 10hr production will be used to calculate the production rate.
 - .2 Any combination of dredges may be used to meet the production rate.
- .4 **Dredging for Ocean disposal site (2.5Km's) - Cubic Meter place measure (CMPM):** Dredging will be measured by the cubic meter place measure of work completed to the specified cut. Side slopes are not measured for payment, but in the calculation of the area to dredge it must be considered that the side slope will either be shaped or will fall to about two horizontal to one vertical. The dredge depth is -2.5m Below Chart Datum. In areas where rock is proved, the dredge depth is to rock elevation.
- .5 Payment will include disposal of dredge material to the ocean disposal site.
- .6 Dredging equipment used for removal of obstructions will be paid for at rate negotiated in advance and authorized in writing by Departmental Representative.

- .7 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.
- .8 No separate payment will be made for Contractor's survey vessel, equipment and crew or diving services.
- .9 There will be no additional payment for delays incurred during fishing seasons, weather, 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 There will be no additional payment for any accumulation of sea weeds and/or kelp which may hamper the dredging operation.
- .13 There will be no additional payment for mooring facilities fees for dredge plant.

1.04 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 Obstructions: material other than class A, having individual volumes of 1.5 m³ or more.
- .5 SQM, Area, in square meters, projected horizontal.
- .6 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials.
- .7 Grade: plane above which material is to be dredged.
- .8 Estimated quantity:
 - .1 Volume of material calculated above grade within dredge limits and within specified side slopes unless otherwise specified.
 - .2 Areas in square meters of material calculated horizontally above grade and within dredge limits, not including side slopes.
- .9 Side slope: inclined surface or plane from grade 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.
- .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 Instantaneous Mode: mode of operation of hydrographic survey equipment where only sounding observed at predetermined distance interval is retained in memory.
- .16 Average of Instantaneous Plan: hydrographic survey plan in which average sounding in appropriate grouping of matrix blocks is plotted.
- .17 Lowest Normal Tide (L.N.T.): plane so low that tide will seldom fall below it.
- .18 Cleared Area: area of dredging accepted as complying with plans and specifications.

1.05 REGULATORY REQUIREMENTS

- .1 Mark floating equipment with lights in accordance with Regulations for the Prevention of Collisions.

1.06 WASTE MANAGEMENT AND DISPOSAL

- .1 Metals, wood and recyclable materials removed during the dredging activities must be diverted appropriate recycling facilities.

1.07 INTERFERENCE TO NAVIGATION AND FISHING

- .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 Engineer 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 District Manager, Canadian Coast Guard, Fisheries and Oceans, informed of dredging operations in order that necessary Notices to Mariners will be issued.
- .4 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.
- .5 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.
- .6 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.

1.08 DATUM, WATER GAUGES AND TARGETS

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

1.09 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. Submit this certificate with equipment information.
- .2 Requests for certification in format of attached questionnaire to be directed to Senior Director, Marine, Energy and Marine Branch, Marine Directorate, Industry Canada, 235 Queen Street, Ottawa, Ontario, K1A 0H5, and to be received there not less than 14 days prior to tender closing.
- .3 The Contractor shall determine the equipment required to dredge the material specified.

1.10 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 tendering.

1.11 SITE INFORMATION

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

1.12 SURVEY REQUIREMENTS

- .1 The Contractor shall provide, at his expense, survey vessel for equipment and crew to set up and maintain control for the location of dredge limits and to sound areas, immediately after dredging, to verify that grade depth has been attained.

1.13 SURVEYS AND ACCEPTANCE OF WORK

- .1 No area will be dredged prior to Departmental Representative's and Contractor's mutual acceptance of pre-dredge survey for that area.
- .2 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 1:500 plotting least of minimum depths obtained in this survey will identify areas requiring reworking to obtain following elevations using least of minimum mode
- .3 Contractor to re-dredge as necessary to remove all material within dredge areas which is found to be above grade.
- .4 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.
- .5 After dredging soundings will be taken by the Departmental Representative upon completion of the Contractor's dredging and no dredge area shall be determined complete until after it has been cleared to the specified grade depth or until so directed by the Departmental Representative.

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 indicated.

3 EXECUTION

3.01 LAYOUT OF WORK

- .1 The contractor will layout the work based on sketches provided by the Departmental Representative, taking into account the dynamics of the sand bars which may change from what is depicted on surveys or a sketch. Similarly the disposal site may change location. (to be located on top of the offshore sand bar)

- .2 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.
- .3 The horizontal datum North American Datum 1983(NAD83) and Map Projection Universal Mercator Projection shall be the horizontal coordinate system used by the contractor to position the dredge. The horizontal position accuracy of the real time tracking system of the dredge shall be less than 1.0 meters.

3.02 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, pins, 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 the 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 Establish and maintain tide boards in order that proper depth of dredging can be determined. Locate tide boards so as to be clearly visible.
- .5 Dredge side slopes to two horizontal to one vertical.
- .6 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.
- .7 Remove shoaling which occurs as result of Work at no expense to Departmental Representative.
- .8 Remove infilling in dredge areas which occurs prior to acceptance by Departmental Representative.
- .9 Immediately notify Departmental Representative upon encountering object which might be classified as obstruction. By-pass object after clearly marking its location and continue Work.

3.03 DISPOSAL OF DREDGED MATERIAL

- .1 Dispose of dredged material by depositing in disposal areas in manner approved by Departmental Representative.
- .2 Define area of disposal site with marker buoys and maintain minimum depth of water of 0.0m below Chart Datum at disposal site.

- .3 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.

3.04 RE-DREDGING

- .1 Re-dredge unsatisfactory Work and verify depths with additional sounding to approval of Departmental Representative.

3.05 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.

END OF SECTION