

PART 1 - GENERAL

1.1 General
Description

- .1 This section specifies requirements for excavating Class "B" underwater materials in Pigeon Hill Gully, and side casting this material to the sides of the channel.
- .2 The dredge depths are approximately 2.0 metres below Chart Datum, and disposal site is considered shallow (less than 1.0 metre deep).

1.2 Related
Sections

- .1 Section 01 35 44 - Environmental Procedures
Section 01 35 30 - Health and Safety

1.3 Measurement
Procedures

- .1 Only material excavated above grade plane and within side slopes 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. This item will be measured each time a call-up is made under the standing offer, regardless of the method of measurement used for the dredging. 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 Mobilization and demobilization will not be paid if the dredge and equipment have not been demobilized from the site between call ups.
 - .3 Any remediation to prevent the possible transport of alien species from port to port will be included in the demobilization costs. See Environmental Protection Section 01 35 44.
 - .4 When multiple Dredging equipment is used, a single mobilization is still applicable.
- .3 **Dredging (Per Day):** The measurement for payment for dredging is per day

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1.3 Measurement
Procedures
(Cont'd)

- .3 Dredging (Per Day):(Cont'd)
- .1 Per day basis is based on 10 hours of actual productive dredging within grades & limits identified. This includes the supply of all plant, equipment and labour to perform the dredging.
 - .2 The call up will be of a minimum of one day.
 - .3 Dredging equipment is catagorized based on evaluated production rates.
 - .4 Any combination of dredges may be used to meet the production rate.
- .4 **Dredging (CMPM):** will be measured in cubic metres, in-place measurement (CMPM), determined from soundings taken before and after dredging. For purpose of quantity computation, existing seabed elevation will be represented by "Average" sounding for each matrix block of survey by Departmental Representative as soon as practical after Contract award. Post dredging elevations for quantity computations will be "Average" sounding sounding for each matrix block.
- .1 Minimum call up will be 500 CMPM.
- .5 Dredging equipment used for removal of obstructions will be paid for at rate negotiated in advance and authorized in writing by Departmental Representative.
- .6 All operations in connection with field positioning of dredging equipment will not be measured separately for payment.
- .7 No separate payment will be made for Contractor's survey vessel, equipment and crew or diving services.
- .8 There will be no additional payment for delays incurred during fishing seasons, weather, during periods when no dredging is permitted.
- .9 There will be no additional payment for downtime and for delays caused by vessel traffic.
- .10 Removal of infilling material from currents will not be measured for payment.

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1.3 Measurement
Procedures
(Cont'd)

- .11 There will be no additional payment for any accumulation of sea weeds and/or kelp which may hamper the dredging operation.
- .12 There will be no additional payment for mooring facilities fees for dredge plant.

1.4 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 CMPM: cubic meters place measurement.
- .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 to be above sub grade and within specified side slopes unless otherwise specified.
 - .2 Areas in square metres of material calculated horizontally above grade and within dredge limits, not including side slopes.
- .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.).

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1.4 Definitions
(Cont'd)

- .11 Coordinates:
 - .1 U.T.M.: universal transverse mercator projection..
- .12 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.
- .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 Mnum Sounding Plan: hydrographic survey plan in which the minimum Sounding is plotted for every matrix block.
- .15 Instantaneous Mode: mode of operation of hydrographic survey equipment where only sounding observed at predetermined distance interval is retained in memory.
- .16 Average Sounding Plan: Average depth of all soundings recorded within a matrix block.
- .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.

1.5 Submittals

- .1 The Contractor will complete and submit a copy of Appendix "C" with his tender which will list all materials and equipment the Contractor proposes to use under this standing offer. Prior to award, the Departmental Representative will review the capabilities of the Contractor to perform the work.
- .2 Submit to Departmental Representative, within two days of a request for dredging, a schedule of work including time periods during which each operation involved in work will be undertaken up to final completion.
- .3 Submit to Departmental Representative, within two days of a request for dredging, a site

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| 1.5 Submittals
(Cont'd) | .3 | (Cont'd)
specific safety plan. This plan is to have emergency numbers and contacts specific to Harbour Authority, property owners emergency response, and operators of water intakes. |
| | .4 | For projects paid by the day, submit to Departmental Representative prior to dredging a sketch showing existing condition of channel with soundings reduced to Chart datum and plotted on approximate 15 m by 15 m grid. |
| | .5 | For projects paid by the day, submit to Departmental Representative upon completion a daily log of activities related to dredging, including a sketch showing post dredging or cleared areas as reduced to Chart datum and plotted on approximate 15 m by 15 m grid. |
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| 1.6 Regulatory Requirements | .1 | Mark floating equipment with lights in accordance with Regulations for the Prevention of Collisions. |
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| 1.7 Waste Management and Disposal | .1 | Metals, wood and recyclable materials removed during the dredging activities must be diverted to appropriate recycling facilities. |
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| 1.8 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 | 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 District Manager, Canadian Coast Guard, Fisheries and Oceans, informed of dredging operations in order that necessary Notices to Mariners will be issued. |
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1.8 Interference to .4
Navigation and
Fishing
(Cont'd)

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.

1.9 Datum, Water
Gauges and Targets

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

1.10 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, 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.

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<u>1.10 Floating Plant (Cont'd)</u>	.3	The Contractor shall determine the equipment required to dredge the material specified. The material to be dredged is as described in Paragraph 1.1 of this Section.
<u>1.11 Inspection of Site</u>	.1	Contractor to visit site of Work and become thoroughly familiar with extent and nature of Work and conditions affecting Work before tendering.
<u>1.12 Site Information</u>	.1	Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.
<u>1.13 Survey Requirements</u>	.1	The Contractor shall provide, at his expense, a 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.
<u>1.14 Surveys and Acceptance of Work</u>	.1	For projects with method of payment of cubic metre place measure, as soon as practical after Contract award, Departmental Representative will complete pre-dredge survey of all dredge area locations. Survey will be by electronic survey equipment sounding in instantaneous mode. Survey plan at 1:500 scale plotting average 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 1:500 plotting "least of minimum" depths obtained in this survey will identify areas

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1.14 Surveys and
Acceptance of Work
(Cont'd)

- .3 (Cont'd)
requiring reworking to obtain following
elevations using least of minimum mode
- .4 Contractor to redredge as necessary to remove
all material within dredge areas which is
found to be above grade.
- .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 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. In the case of measurement on
a per day basis, the clearance of the dredge
site/call-up may also be done by the PWGSC
representative on site in lieu of an
electronic survey. In such case provide
assistance to the Departmental Representative
in the verification of dredged depth.

PART 2 - PRODUCTS

2.1 Dredging
Equipment

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

PART 3 - EXECUTION

3.1 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.
- .2 Install pins at the corners of the dredging area to be dredged.
- .3 For gully dredging and in channels far from land references, use Global Positioning System (GPS), differential corrected, instrumentation valid at 3.0 metre accuracy. Record position of pins in UTM co-ordinates. At the earliest opportunity, forward these to PWGSC Departmental Representative for verification. The contractor is responsible to ensure GPS instrumentation is verified for accuracy every three months.
- .4 Positions of pins may be verified in the field by PWGSC.

3.2 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 established bench marks ranges and baseline. Provide and maintain positioning 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 Remove materials above specified grade depths, within limits indicated. Material

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3.2 General
(Cont'd)

- .5 (Cont'd)
removed from below subgrade depth or outside
specified area or side slope is not part of
Work.
- .6 Remove shoaling which occurs as result of
Work at no expense to Departmental
Representative.
- .7 Remove infilling in dredge areas which occurs
prior to acceptance by Departmental
Representative.
- .8 Immediately notify Departmental
Representative upon encountering object which
might be classified as obstruction. By-pass
object after clearly marking its location and
continue Work.

3.3 Disposal of
Dredged Material

- .1 Dispose of dredged material to the sides of
the channel in manner approved by Departmental
Representative.
- .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.

3.4 Re-dredging

- .1 Re-dredge unsatisfactory Work and verify
depths with additional sounding 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.