

1 - GENERAL

1.01 RELATED SECTIONS

- .1 Section 05 50 00 - Miscellaneous Metals
- .2 Section 06 05 73 - Wood Treatment.

1.02 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA-G164-M92 (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .2 CAN/CSA-0141-91 (R1999), Softwood Lumber.
- .2 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2000.

1.03 QUALITY ASSURANCE

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

1.04 MEASUREMENT FOR PAYMENT

- .1 Treated dimension timber supplied and installed for longitudinals, coping, wheelguard, splice blocks, fillers and other miscellaneous timber to complete the work will be measured by Lump sum price for Cribwork Repairs. Included will be all galvanized/stainless steel fastenings, plant, material, and labour. Included under this section, but not necessarily limited are the following items:
 - .1 Cribwork repairs:
 - .1 Removal and disposal of sections of the existing timber wheelguard, longitudinal timber coping, timber filler pieces, timber handrail, and other deteriorated or damaged timbers as necessary.
 - .2 Repairs to the South and West walls of the timber crib at the shore end of the existing structural steel ramp, including timber fillers, longitudinal timber, timber coping, timber blocks, timber wheelguard and associated fastening hardware.
 - .3 Replacement of deteriorated or damaged sections of the Old Ferry Wharf.
 - .4 Repairs to the West Face of the outer two cribwork sections of the Old Ferry Wharf including, timber fillers, longitudinal coping timbers, timber wheelguard blocks, timber wheelguard, timber spacer elements, vertical timber sheating and associated fastening hardware.
 - .2 Timber ladders:
 - .1 The supply and installation of new timber ladders will be measured by

- the number of ladders supplied, placed and incorporated into the work.
- .3 Timber Fenders:
 - .1 The Supply and Installation of New Timber fenders will be measured by the number unit of 250mm x 250mm of timber fenders supplied, installed and incorporated into the work.

1.05 Dimensions

- .1 Construct and install dimension timber, to dimensions indicated on the drawings.
- .2 Check dimensions before commencing work and report discrepancies to Departmental Representative.

2 - PRODUCTS

2.01 MATERIALS

- .1 Use timber grade and stamped in accordance with applicable grading rules and standards of Associations or Agencies approved to grade lumber by Canadian Lumber Standards Administration Board of CSA.
- .2 Species:
 - .1 Structural timber species: Hemlock or Douglas Fir (CCA Treated).
 - .2 Grade: No. 1 Structural Grade with maximum of 20% of a lesser grade.
 - .3 Timber Ladders: Hemlock or Douglas Fir (CCA Treated)
 - .4 Timber Fenders: Hemlock or Douglas Fir (CCA Treated)

2.02 WOOD PRESERVATIVE

- .1 In accordance with Section 06 05 73.

2.03 MISCELLANEOUS STEEL AND FASTENINGS

- .1 In accordance with Section 05 50 00.

3 - EXECUTION

3.01 INSTALLATION

- .1 Comply with requirements of NBC 1995, Part 9 supplemented by following paragraphs.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.

- .4 Install spanning members with "crown-edge" up.
- .5 Install fasteners in accordance with Section 05 50 00.
- .6 Do installation of dimension timber to CSA 086-M83.
- .7 Precut timber prior to preservative treatment.

3.02 FIELD CUTTING TREATED TIMBER

- .1 Field cuts are to be minimal to suit field conditions. Follow best practices by cutting and field preserving treated timber in one location over a ground sheet and collect all saw dust, scraps and drippings for disposal at an approved disposal site.
- .2 Treat, in field, cuts and damage to surface of treated material with an appropriate preservative as described in CSA 080 Series-97. Ensure that damaged areas such as abrasions, nail and spike holes are thoroughly saturated with field treatment solutions as per CSA 080 Series-97.
- .3 Treat bolt holes, cut-offs and field cuts in accordance with CSA 080 Series-97.

3.03 PREPARATION

- .1 Carefully remove damaged or deteriorated timbers taking care not to damage existing timbers that will remain in the repaired structure.

3.04 CRIBWORK REPAIRS

- .1 Secure new timber wheelguard, timber wheelguard blocks, longitudinal coping timbers, filler timbers, timber spacers, timber fillers and longitudinal crib timber below the timber fillers with 25mm diameter machine bolts.
- .2 The New Timber wheelguard will be secured through the timber wheelguard blocking, timber coping, timber spacers, timber fillers and longitudinal crib timbers below the timber fillers with 25mm diameter machine bolts.
- .3 The New Timber coping will be secured at each timber crosstie with new galvanized steel brackets and 22mm diameter machine bolts as indicated. The New Coping timbers will extend through the timber spacers, filler timbers and extend into the longitudinal crib timbers below the timber fillers.
- .4 Along sections of the Old Ferry Wharf structure where only deteriorated or damaged sections of the timber wheelguard are to be replaced secure to the new timber wheelguard blocks with new 25mm machine bolts attached in the same manner as the existing securing bolts.
- .5 Replace deteriorated or damaged timber cribwork elements that are adjacent to locations where new timbers are to be installed with new treated timbers of same cross section dimensions as existing cribwork. Splices in cribwork timbers will be butt joined at the centre of a marrying splice block. Cribwork timbers to be secured horizontal to vertical with 22mm machine bolt and vertically with 22mm drift bolt.

3.05 LADDERS

- .1 Install ladders on face of wharf as indicated.
- .2 Secure each ladder stringer with 19mm diameter galvanized lag bolts spaced at 1500mm centres. All lag bolts to be countersunk.

3.06 Timber Fenders

- .1 Install fender timbers as indicated.
- .2 Secure each fender timber with 19mm diameter galvanized lag bolts, spaced at 500mm centres. All lag bolts to be countersunk

3.07 BOLT SIZING

- .1 Drift Bolts: Drift Bolts used in the work will be 22mm diameter and will have a length equal to thickness of timbers being fastened less 50mm unless otherwise specified. Holes for drift bolts will be bored 2mm smaller diameter than size of steel used and for full length of bolts.
- .2 Machine Bolts: Machine Bolts used in work will be 22mm diameter and 25mm diameter and will have a length equal to thickness of timbers being fastened, plus thickness of washers, plus 40mm. Where bolts are countersunk, the length will be as above, less depth of countersinking. Machine bolts will be threaded for 64mm. Holes will be drilled same diameter as bolt.
- .3 Lag Bolts: All lag bolts used in the work will be 19mm diameter and will have a length equal to thickness of timbers being fastened less 50mm and depth of countersinking. The threaded portion of the lag bolt will be equal to the lesser of one half the length of the lag bolt or 150mm. Holes for lag bolts to be drilled to the same diameter for the shank portion of the bolt and to the inside thread diameter for the threaded portion of the bolt. All lag bolts will be installed with one (1) standard washer under the head. Lag bolts will be screwed into place and not driven.
- .4 Countersinking drift bolts and lag bolts to the extent that the minimum distance from face of timber to head of bolt is 12mm.
- .5 Bolting of timbers without properly drilled bolt holes will not be accepted.

3.08 FIELD QUALITY

- .1 Timbers which contain rot, splits exposing untreated wood, excessive wane, or timbers which cannot be fastened in the work so as to be structurally sound are unacceptable.
- .2 The Departmental Representative reserves the right to carry out field testing of treated timber for penetration and retention of preservative. Timber not meeting the requirements of the specification may be rejected for use under the contract.

PWGSC
Harbour Improvements
North Head and Whitehead
Grand Manan, N. B.
Charlotte County
Project No. R.076368.001

Dimension Timber

Section 35 00 00

Page 5

3.09 FIELD TREATMENT

- .1 Handle pressure treated material in a manner that will avoid damage which may expose untreated material.
- .2 Fill all bored bolt holes with preservative immediately after boring. Use a pressurized container with hose to apply preservative, or some alternate method acceptable to the Departmental Representative.
- .3 Fill all unused bored holes and spike holes with tight fitting treaded wooden plugs.
- .4 Field cuts, if authorized, are to receive three (3) liberal coats of the applicable preservative applied to dry wood on each application.

END OF SECTION

1 GENERAL

1.01 Related Sections

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

1.02 PRICE AND PAYMENT PROCEDURES

- .1 Measurement for Payment for Mobilization and Demobilization will be paid under section 02 41 16.
- .2 Measurement and Payment for dredging:
 - .1 Dredging at Whitehead will be paid as a lump sum.
 - .2 Dredging at North Head will be measured for payment by the CPM.

Included but not limited to the following for dredging at both Whitehead and North Head are the following items:

- .1 Operations in connection with field positioning of equipment will not be measured separately for payment.
- .2 No separate payment will be made for Contractor's survey vessel, equipment and crew or diving services.
- .3 Payment will include disposal of dredge material, at location specified.
- .4 No additional payment for delays incurred during fishing seasons, during periods when no dredging is permitted.
- .5 No additional payment for downtime and for delays caused by vessel traffic.
- .6 Removal of infilling material will not be measured for payment.
- .3 No Measurement for Payment will be made for Pre-dredge survey, Seismographic survey and continuous monitoring by a registered consultant, it will be considered incidental to this section.

1.03 REFERENCES

- .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 Grade: plane above which material is to be dredged.
 - .6 Sub-grade: plane parallel to and 300 mm below grade.
 - .7 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 to exist above grade and within dredge limits, unless otherwise specified.
 - .8 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.
 - .9 Chart Datum: permanently established plane from which soundings or tide heights are referenced, usually Lowest Normal Tide (LNT).
 - .10 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.
 - .11 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.
 - .12 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.
 - .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 (LNT): plane so low that tide will seldom fall below it.
 - .17 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 harbour or due to other Contractor's operations.
 - .3 Keep District Manager, Canadian Coast Guard, Fisheries and Oceans, Grand Manan Harbour Authority 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.
- .2 Submit to Departmental Representative for approval, 6 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 Departmental Representative before proceeding.
- .3 Submit to Departmental 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.
- .4 Submit to Departmental Representative a Pre-Blast Seismographic survey and reports on continuous Seismographic monitoring.

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

- .6 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. Areas are to be sounded to provide sounding printout display of at least 2 x 2m UTM grid to approval of 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 specified.

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of location:
 - North Head: Area is as indicated on the drawings.
 - Whitehead:
 - .1 Area "A" of approximately $\pm 200\text{m}^2$, at the location indicated on the drawings.
 - .2 Area "B" of approximately $\pm 400\text{m}^2$, at the location indicated on the drawings.
- .2 Surveys and acceptance of work:
 - .1 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. 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'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 requiring reworking to obtain following elevations using least of minimum mode: -2.5m below LNT.
 - .4 Contractor to redredge as necessary to remove all material within dredge areas which is found to be above grade as specified herein.
 - .5 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.
 - .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 -2.5m before area will be considered completed.

3.02 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 Point "Armour" Elevation 7.41 meters 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 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.
- .8 Dredge areas to elevations indicated on drawings.
- .9 Dredge side slopes to be vertical.
- .10 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.
- .11 Remove shoaling which occurs as result of Work at no expense to Departmental Representative.
- .12 Remove material cast-over on surrounding area and dispose of it as dredged material. Do not cast-over material unless authorized by Departmental Representative.
- .13 Remove infilling in dredge areas which occurs prior to acceptance 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.
- .14 Tolerances:

- .1 Do not dredge material from areas lying within 5 m of existing structure unless authorized by Departmental Representative.

3.03 CLASS 'A' REMOVAL

- .1 Complete removal of Class 'B' material and obstructions in area before blasting for Class 'A'. Work toothed buckets over area to remove Class 'B' material until Departmental Representative is satisfied that further removal cannot be accomplished without blasting.
- .2 Provide specialist with qualifications acceptable to Departmental Representative and Municipal or Provincial Authorities to programme and supervise blasting.
- .3 Contractor will retain Specialist Company to carry out seismographic survey before rock excavation is started, to determine maximum charges that can be used at different locations in area of rock excavation. Following survey, full report detailing control requirement throughout Project will be forwarded to the Departmental Representative prior to the start of blasting. Report or any part of it will not over-rule requirements of local authority having jurisdiction unless report requirements are more conservative.
- .4 Seismographic blast monitoring will be provided by Contractor during the entire progress of blasting operations.
- .5 All necessary precautions to prevent damage to existing structures and private property must be suitably employed by the Contractor to the satisfaction of the Departmental Representative prior to any blasting. Any damage to existing structures and private property as a result of blasting operation will be repaired at Contractor's expense.
- .6 Representative of testing laboratory will visit owners of adjacent buildings and structures and describe blasting and seismic recording operations to them and obtain their permission for setting up seismographs.
- .7 Contractor will conduct a pre-blast survey prior to commencement of blasting operations. Survey to include condition of adjacent structure, buildings, etc., and submit a report to the Departmental Representative.

3.04 SEISMIC MONITORING

- .1 Contractor will hire and pay for a registered consultant to do the Seismic monitoring.
- .2 Contractor to perform continuous monitoring of the seismic instrument during all periods of blasting and periods thereafter to the satisfaction of the Departmental Representative.
- .4 Provide a written blasting schedule to the Departmental Representative, the Grand Manan Harbour Authority, Coastal Ferries, John F. Morse & Son Store located next to the Whitehead Harbour, Special K Fisheries located next to the North Head Wharf and any utility company that could be affected.

- .5 No blasting shall be conducted while ferry operations are ongoing, including, ferries coming, going or docked at the ferry terminal.
- .6 Contractor will be fully responsible for any damages that occur to any structure near the blasting, and will be responsible to reinstate all damages. The Whitehead Ferry is traveling within the harbour.

3.05 FUEL TANK ON FUELING WHARF AT WITHEHEAD

- .1 Contractor will note the presence of fuel tanks on the Fueling Wharf as indicated on the drawings. Contractor will take every precaution to assure that the tanks or supply pipe to the tanks are not damaged as a result of the Contractor's Operations. Any damages to tanks or supply lines could result in loss of fuel or environmental contamination for which the Contractor will be responsible.

3.06 SPECIAL K FISHERIES AND COASTAL TRANSPORT

- .1 Contractor will note the presence of Coastal Transport at both Whitehead and North Head, and the close proximity of Special K Fisheries next to the construction at North Head. Contractor will take every precaution to assure that the adjacent buildings and access are not damaged as a result of Contractor's dredging operations. Any damages to tanks or supply lines could result in loss of fuel or environmental contamination for which the Contractor will be responsible.

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, 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.

3.08 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management as per Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .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

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|--------------------------|----------|------------------|
| PWGSC | DREDGING | SECTION 35 20 23 |
| Harbour Improvements | | PAGE 8 |
| North Head and Whitehead | | |
| Grand Manan, N.B. | | |
| Charlotte County | | |
| Project No. R.076368.001 | | |

manner approved by Departmental Representative.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 31 05 16 - Aggregate Materials.

1.02 MEASUREMENT AND PAYMENT

- .1 Measurement for payment of Core will be in Tonnes of material acceptably placed. Core reused from Dredging at North Head will not be measured for payment. Include cost under unit price for Dredging at North Head.
- .2 Measurement for payment of Filter will be in Tonnes of material acceptably placed.
- .3 Measurement for payment of Armour will be in Tonnes of material acceptably placed.
- .4 Mobilization/demobilization of equipment to be paid under section 02 41 16.
- .5 Construction and maintenance of haul roads will not be measured for payment.

1.03 REFERENCES.

- .1 ASTM International
 - .1 ASTM C 117-2004, Standard Test Method for Material Finer than 0.075 mm Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C 136-2006, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of New Brunswick, Canada.
- .3 Samples
 - .1 Inform Departmental Representative of proposed source of materials and provide access for sampling at least 3 weeks prior to commencing Work.
 - .2 Submit 20 to 70 kg samples representative of quarry, minimum 3 weeks prior to beginning Work.

1.05 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common

Product Requirements.

2 PRODUCTS

2.01 MATERIALS

- .1 Rock materials:
 - .1 Free from cracks, seams and other defects which may impair durability; relative density (formally specific gravity) minimum 2.64; slate and shale not acceptable.
 - .2 Crushed stone material: in accordance with Section 31 05 16 - Aggregate Materials and to following requirements:
 - .1 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1, CAN/CGSB-8.2.

| Sieve Designation | % Passing |
|-------------------|-----------|
| 200 mm | - |
| 75 mm | 100 |
| 50 mm | - |
| 38.1 mm | - |
| 25 mm | - |
| 19 mm | 30-70 |
| 12.5 mm | - |
| 9.5 mm | - |
| 4.75 mm | 10-40 |
| 2.00 mm | - |
| 0.425 mm | - |
| 0.180 mm | - |
| 0.075 mm | 0-8 |
 - .2 Core stone: quarried rock with percent by mass passing 12.5 mm sieve not to exceed 10.
 - .1 Core Stone sizes to be in range of 0.2kg to 300kg.
 - .3 Filter layer stone quarried rock:
 - .1 Greatest dimensions of each stone not to exceed two times least dimension.
 - .2 Filter layer stone sizes to be in range of 700 kg to 1400 kg.
 - .4 Toe protection stone:
 - .1 Greatest dimension of each stone not to exceed 2 times least dimension.
 - .2 Stone sizes to be in range of 4 Tonnes to 6 Tonnes.
 - .5 Armour stone: quarried rock:
 - .1 Greatest dimension of each stone not to exceed 2 times least dimension.
 - .2 Stone sizes to be in range of 4 Tonnes to 6 Tonnes.

3 EXECUTION

3.01 PREPARATION

- .1 Haul roads: construct and maintain haul roads.

3.02 CORE

- .1 Place core material to lines, grades and dimensions as indicated.
- .2 Place core layer material in 300mm courses.

3.03 GRANULAR FILTER LAYER

- .1 Place filter layer material to lines, grades and dimensions indicated.
- .2 Place filter layer material in 300mm courses.

3.04 TOE PROTECTION

- .1 Place toe protection stone to lines, grades and dimensions as indicated or as directed by Departmental Representative.
- .2 Place each Toe Protection stone in stable position.
- .3 Place geotextiles in accordance with Section 31 32 19.01 - Geotextiles.

3.05 ARMOUR STONE

- .1 Place armour stone to lines, grades and dimensions as indicated.
- .2 Place each armour stone in stable position.

3.06 TOLERANCES

- .1 Completed component layers to be within following tolerances of lines and grades as indicated:
 - .1 Core: plus or minus 300 mm.
 - .2 Filter Stone layer: plus or minus 300 mm.
 - .3 Toe protection: plus or minus 300 mm.
 - .4 Armour: plus or minus 300 mm.

3.07 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

1 - GENERAL

1.01 DESCRIPTION

- .1 This section specifies the general requirements for the transportation of floats currently stored at North Head, and installation of the floats at the location indicated on the drawings.

1.02 RELATED WORK

- .1 Section 05 50 00 - Miscellaneous Metals
- .2 Section 31 62 16.19 - Unfilled Tubular Steel Piles
- .3 Section 31 63 19 - Bored and Socketed Piles

1.03 MEASUREMENT FOR PAYMENT

- .1 Payment for Installation of Floats will be made as a lump sum. This will include all equipment necessary for the complete float installation, to the locations shown on the plans.
 - .1 Transportation of the floats from the shore, and launching and installation to the location at North Head as indicated on the drawings will be included in the lump sum payment in this section.

1.04 DELIVERY AND HANDLING

- .1 Protect floats from damage due to excessive bending stresses, impact, or other causes during handling.
- .2 Protect public and construction personnel, adjacent structures and work of other sections from hazards attributable to handling and moving of new floats.

2 - PRODUCTS

2.01 MATERIALS

- .1 Floats are currently located at Ingalls' Head Wharf, Grand Manan, New Brunswick.

3 - EXECUTION

3.01 INSTALLATION OF FLOATS

.1 Method of pickup and placing of floats in water is to be submitted as per section 01 33 00, for the Departmental Representative's review.

.2 Any damage during launching is to be repaired and paid by the Contractor, at no additional cost to the Crown.

3.02 FLOAT ANCHORAGE

.1 Floats are to be installed as indicated on the plan.

END OF SECTION