

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal
- .3 Section 31 32 21 - Geotextiles

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm Sieve in Mineral Aggregates by Washing.
  - .2 ASTM C136-06, 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.
  - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 SUBMITTALS

- .1 Submit to Departmental Representative for approval, 4 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.

.2 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.

.3 Samples

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

.2 Inform Departmental Representative of proposed source of materials and provide access for sampling at least 2 weeks prior to commencing Work.

.3 Submit 20 to 70 kg samples representative of quarry, minimum 2 weeks prior to beginning Work.

.4 Ship samples prepaid to Departmental Representative for approval.

#### 1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Collect and separate for disposal paper, plastic, polystyrene, and corrugated cardboard for recycling in accordance with Waste Management Plan.

.3 Divert unused geotextiles from landfill to plastic recycling facility as approved by Departmental Representative.

.4 Divert unused metal materials from landfill to metal recycling facility

as approved by Departmental  
Representative.

- .5 Fold up metal banding, flatten and place in designated area for recycling.

1.5 INTERFERENCE TO  
NAVIGATION

- .1 Be familiar with vessel movements and fishery activities in area affected by construction operations.
- .2 Plan and execute work, in a manner that will not impede navigation, including movement of vessels at the facility.
- .3 Plan and execute work, in a manner that will not interfere with fishing operations or access to marine structures by land or water.
- .4 Departmental Representative will not be responsible for loss of time, equipment, material or any other charges related to interference with moored vessels in the harbour or other Contractor's operations.
- .5 Keep the Marine Communications and Traffic Services' Centre, Fisheries and Oceans Canada, informed of construction operations, in order that necessary Notices to Mariners may be issued.

1.6 REGULATORY  
REQUIREMENTS

- .1 Comply with municipal, provincial and national codes and regulations relating to project. Refer to the attachments.
- .2 Mark floating equipment with sound and light signals in accordance with Collision Regulations made pursuant

to the Canada Shipping Act and  
Notice to Mariners.

1.7 MEASUREMENT FOR  
PAYMENT

- .1 Filter Stone (200 kg - 600 kg): Measured by cubic metre place measure (CMPM) of material and supplied and placed in the work within the limits specified on the drawings. Contractor to consider supply and installation of geotextile and/or geogrid as incidental to filter stone unit price.
- .2 Armour Stone (1 - 2 tonne): Measured by cubic metre place measure (CMPM) of material and supplied and placed in the work within the limits specified on the drawings. Contractor to consider supply and installation of geotextile and/or geogrid as incidental to filter stone unit price. Contractor to ensure toe of armor stone berm installed to depths as indicated to prevent undermining during dredging in front of structure.
- .3 Perimeter Stone: Supply and placement of perimeter stone, including the cost of all plant, labour, equipment, and materials required to complete the work as specified, will be measured by the each.
- .4 There will be no payment made for any material or stone placed beyond limits indicated on the drawings. The final contract grade must be within 200mm of the specific elevation. Quantities will be based on an as-built survey. Any material placed outside the lines and grades

as shown on the drawings will be not be measured.

- .5 There will be no additional payment for delays resulting from fishing operations.
- .6 There will be no additional payment for delays caused by vessel traffic.
- .7 There will be no additional payment for downtime.
- .8 There will be no payment for any filter stone or armour stone that is washed out, removed, missing or deteriorated by weather or wave action.
- .9 Contractor is to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings over each type of material. Measurement for payment for this will be considered included in the cost of the supply and installation of the materials. There will be no separate payment. Survey shall be witnessed and approved by site inspector, and approved by Departmental Representative.
- .10 Mobilization/demobilization of equipment will not be measured for payment.
- .11 Construction and maintenance of haul roads will not be measured for payment.

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PART 2 - PRODUCTS

2.1 ROCK MATERIAL

- .1 Hard, angular rock free from cracks, seams and other defects which may impair durability.
- .2 Relative density, 2.65 minimum.
- .3 Absorption, 1.5 to 2.0% maximum as determined by ASTM C127 test procedure.
- .4 Durability, less than 35% abrasion Wear, ASTM C535 test procedure.
- .5 Sulphate Soundness Determination maximum 12% by ASTM C88.

2.2 FILTER STONE

- .1 Material for filter stone to be blasted rock or field stones.
- .2 Stone size to be well graded between 200 kg to 600 kg, in categories specified, well graded within each category.
- .3 Greatest dimension of each stone not to exceed two (2) times the least dimension.

2.3 ARMOUR STONE

- .1 Material for armour stone to be blasted rock or field stones.
- .2 Stone sizes to be in the range of 1 to 2 tonnes, in categories specified, well graded within each category.
- .3 Greatest dimension of each stone not to exceed two (2) times least dimension.

2.3 PERIMETER STONE

- .1 Hard, dense stone with relative density (formally specific gravity) not less than 2.65, durable quarry stone, free from seams, cracks or other structural defects, to meet following size distribution for use intended.
- .2 Perimeter stone to be single stone with minimum size on any side of 900mm.

2.4 GEOTEXTILE

- .1 In accordance with Section 31 32 21 - Geotextiles.

PART 3 - EXECUTION

3.1 PREPARATION

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

3.2 FILTER STONE

- .1 Place filter stone layers to grades, dimensions, profiles and cross sectional elements indicated on the drawings. Contractor should realize the large distance required to place the filter stone out into the water, supply necessary equipment to complete as shown on drawings.
- .2 Place filter stone in layers as indicated on the drawings.
- .3 Side slopes to be 1.5 horizontal to 1.0 vertical unless otherwise indicated on the drawings.
- .4 Do not transport different categories of material in the same truckload. If rocks of markedly different sizes are present in the same load, Departmental Representative reserves the right to

have each rock measured separately and sorted prior to installing in structure.

- .5 The contractor is to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings, measurement for payment for this will be included in the cost of the supply and installing the above item.

### 3.3 ARMOUR STONE

- .1 Place armour stone to lines, grades and dimensions indicated on the drawings. Contractor should realize the large distance required to place the armour stone out into the water, supply necessary equipment to complete as shown on drawings.
- .2 Dumping of armour stone will not be permitted. Each stone will be lifted and individually placed.
- .3 Side slopes to be 1.5 horizontal to 1.0 vertical unless otherwise indicated on the drawings.
- .4 Place armour stone to a total layer thickness as indicated on the drawings.
- .5 Choose stones and place them in such a way that the whole structure will be bonded and consolidated to as great an extent as nature or rock will allow. Rocks should vary in size so they don't create steep slopes when placing to the grade lines as indicated on the drawings.



.6 Do not transport different categories of material in the same truckload. If rocks of markedly different sizes are present in the same load, Departmental Representative reserves the right to have each rock measured separately and sorted prior to installing in structure.

.7 Contractor to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings. Measurement for payment for this work will be included in the cost of the supply and installing the above item.

#### 3.4 PERIMETER STONE

.1 Place perimeter stone as directed at 1500mm centre-on-centre around perimeter of laydown area as indicated.

#### 3.5 ROCK MATERIAL WASHED OUT OF WORK

.1 Should during the progress of the Work, any rock material be washed out of the Work, or through neglect of carelessness of the Contractor or their employees or from any other cause, be dumped into the water near the Work or anywhere within the harbour or channel so as to interfere in the opinion of the Departmental Representative with actual depths of water and/or impede navigation, it will be removed by the Contractor when ordered to do so by the Departmental Representative. Any material washed out of the Work or displaced beyond the contract limits will be replaced by the Contractor at no cost to Canada.

3.6 TOLERANCES

- .1 Note: These tolerances are not to be considered pay limits but are specified to ensure contractor keeps within acceptable lines and grades.
- .2 Completed component layers to be within the following tolerances of lines and grades indicated:
  - .1 Filter stone +/-100 mm.
  - .2 Armour stone +/-300 mm.