
PART 1 - GENERAL

- 1.1 Description .1 This section specifies the requirements for supplying and armour stone at the locations and to the dimensions indicated on the plans.
- 1.2 Reference Standards .1 ASTM C131/C131M-14, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
- 1.3 Related Work .1 Refer to other Specification Sections for related information.
- 1.4 Source of Material .1 Inform *Departmental Representative* at least two weeks prior to commencing work of the location of the source of materials.
- 1.5 Measurement for Payment .1 Armour stone:
.1 Armour stone will be measured in accordance with **Section 01 29 00**.
.2 Transportation of material to the site and any excavation and preparation of the foundation base will not be measured for payment but will be considered incidental to the work.
.3 Removal and reuse of existing suitable material will be measured in accordance with **Section 01 29 00**.

PART 2 - MATERIALS

- 2.1 Stone .1 Armour stone:
.1 Armour stone will be hard, dense, durable, angular stone, free from cracks, or other structural defects.
.2 Greatest dimension of each stone will not exceed two times the least dimension.
.3 Density not less than 2.6 tonnes/m³.
.4 Los Angeles Abrasion Test (ASTM C131) 35% maximum.
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- .5 Armour stone shall have average mass of 700 kg and shall be graded within the following limits:

MASS (kg)	% BY MASS
1000 - 700	50
700 - 400	40
400 - 200	10

2.2 Removal and
Reinstatement of
Armour Protection
Area

- .1 Remove and store existing armour stones as required from the area, near the entrance from Pereau Road to the wharf approach structure.
- .2 After the installation of the Berlin wall, backfill area and grade to blend into existing grade elevations as shown. Ensure slope is adequately compacted and stable.
- .3 Place armour stone over the graded area to the approval of *Departmental Representative*.

PART 3 - EXECUTION

3.1 Placing

- .1 Armour stone:
- .1 Place armour stone as shown on the drawings or as directed by the *Departmental Representative*.
- .2 Completed armour stone in place shall consist of a single layer, a total of 1 m thick.
- .3 Place armour stone in an approved manner to produce regular surface and a stable mass.

- .2 End dumping of armour on prepared slopes will not be permitted. The armour stone shall be placed carefully in place with equipment so that it interlocks with adjacent armour stone units.
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PART 1 - GENERAL

- 1.1 Description of Work
- .1 This section specifies requirements for the following items:
 - .1 Mooring cleats
- 1.2 Reference Standards
- .1 ASTM A48/A48M-03 (2016) (or latest edition), Standard Specification for Gray Iron Castings.
 - .2 ASTM A123/A123M-17 (or latest edition), Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - .3 ASTM F3125/F3125M-15a (or latest edition), Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum.
 - .4 CSA G40.20/G40.21-13(R2018) (or latest edition), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- 1.3 Related Work
- .1 Refer to other Specification Sections for related information.
 - .2 Refer to **Section 01 33 00** for Shop Drawing/Submissions requirements.
- 1.4 Submissions
- .1 Shop Drawings:
 - .1 Clearly indicate the following items:
 - .1 General arrangements, dimensions, clearance locations and directions of assemblies as installed on structures.
 - .2 Locations, sizes and installation tolerances of anchor bolts, eye bolts and embedded parts.
 - .3 Types of materials used, finishes and core thickness.

.4 All other pertinent details and accessories.

.2 Product Data/Samples:

.1 Provide product data and manufacturers brochures for the mooring cleats.

.3 Test Results:

.1 Provide test results for the galvanized items.

.4 Submissions:

.1 Provide submissions in accordance with **Section 01 33 00.**

1.5 Measurement for Payment

.1 Mooring cleats, including fastenings, will be measured in accordance with **Section 01 29 00.**

PART 2 - PRODUCTS

2.1 Materials

.1 Hardware and miscellaneous items must meet the following specifications:

.1 Anchor bolts, nuts, washers to ASTM F3125/F3125M, Grade A325.

.2 Mooring cleats: cast iron to ASTM A48, Type B2.

.3 Do not use items manufactured or fabricated from scrap steel of unknown chemical composition or physical properties.

.4 Hot dip galvanize anchor bolts, nuts, washers and any other miscellaneous steel to ASTM A123/A123M with minimum zinc coating of 600 g/m².

PART 3 - EXECUTION

3.1 Mooring Cleats

.1 Install mooring cleats as shown on drawings and fasten to concrete deck and curb using anchor bolts as indicated. Allow for 25 mm of grout under base.

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- .2 Do not make alterations to any components without written permission of *Departmental Representative*.

3.2 Installation
General

- .1 **Contain all debris and leachates (films on water surface) within the area of the work by using containment facilities such as floating booms or screens.**