PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies the requirements for supply and installation of mooring devices as follows:
.1 Supply and installation of 100 ton mooring bollards as specified.
.2 Supply and installation of Type "A" mooring cleats on new cleat blocks as specified.

1.2 RELATED WORK

.1 Section 02 41 16 - Site work, Demolition, and Removal.

.2 Section 03 10 00 - Concrete Forming and Accessories.

.3 Section 03 20 00 - Concrete Reinforcing.

.4 Section 03 30 00 - Cast-in-Place Concrete.

1.3 MEASUREMENT FOR PAYMENT

.1 100 ton Mooring Bollard:
.1 The supply and installation of 100 ton mooring pipe bollards, including dead man structural steel, will be measured by the unit secured in place. Contractor to provide all concrete, reinforcing steel, fastenings, paint, plant, equipment, and labour.

.2 Mooring Cleats - Type "A":
.1 The supply and installation of Type "A1" mooring cleats, including reinforced concrete pedestal, will be measured by the unit secured in place. Contractor to provide all concrete, reinforcing steel, anchor bolts, nuts, washers, grout, fastenings, paint, plant, equipment, and labour.

PART 2 - PRODUCTS

2.1 MATERIALS .1 Mooring Devices:
.1 100 ton Mooring Material:
All sized and dimensions as shown in drawings
.2 Mooring Cleats Type ‘A’: carbon cast steel, 225kg weight as dimensioned on the drawings.
.3 Anchor Bolts and Nuts: to ASTM A307, galvanized.
.4 Non-Shrink Grout: pre-mixed compound of non-metallic aggregate and plasticizing agents, capable of developing minimum compressive strength of 50MPa at 28 days.
.5 Galvanizing: to CSA G164, minimum zinc coating 610 g/m^2.
.6 Welding: to CSA W59.
.7 Sealer: to Section 07 92 10.
.8 Concrete: to Section 03 30 00.
.9 Concrete Reinforcement: to CSA G30.12M, Grade 400.
.10 Primer: Alkyd undercoat, exterior oil ferrous metal primer, similar to Pittsburgh 6-208.
.11 Paint: Alkyd/Oil Resin paint similar to Pittsburgh Paints "Brilliant Red (Safety Red)" Product ID 7-801. Paint to conform to CAN/CGSB-1.61-2004.

2.2 SHOP DRAWINGS .1 Submit fabricator's shop drawings on cleats in accordance with Section 01 33 00 - Submittal Procedures.

PART 3 - EXECUTION

3.1 INSTALLATION .1 Mooring Bollards – 100 ton:
.1 Install pipe bollards and dead man as indicated in drawings.
.2 Install concrete anchor block as indicated in the drawings.

.2 Mooring Cleats - Type "A":
.1 Install concrete cleat block and pedestals for Type "A" cleats as indicated.
.2 Install concrete cleat blocks monolithically with deck.
.3 Secure cleats with 25mm diameter anchor bolts as indicated.
.4 After cleat installation is complete, bolt holes in cleats to be filled with approved waterproofing compound.

3.2 GROUT

.1 Set all mooring cleats at locations and elevations indicated or as directed by the Departmental Representative. Grout under base of cleat using a non-shrink, non-metallic type of grout after tightening of anchor bolts or positioning wedges. Grout must be approved by Departmental Representative. Fill anchor bolt holes with approved sealer. Ensure that temperatures of foundation, air, base and grout are within range specified by grout manufacturers.

.2 Do not grout until approval given by Departmental Representative.

3.3 PAINTING

.1 Paint ferrous metal portion of mooring cleat and bollard.

.2 Use one (1) coat of exterior oil ferrous metal primer and two (2) coats of alkyd/oil resin paint as specified. Paint materials for each coat to be product of a single manufacturer as specified. Ensure previous coat of primer or paint is dry before second coat is applied.