

**REPLACEMENT OF DAMAGED RUBBER DOCK FENDERS  
PORT OF BROOKE'S POINT, PALAWAN**

**SITE WORKS**

**1.0 MOBILIZATION & DEMOBILIZATION**

**1.1.1 GENERAL**

Work under this Contract shall be in accordance with the terms and conditions stipulated in the Conditions of Contract and Section 1 "General Requirements" of these Specifications and shall apply to this Section whether herein referred to or not.

**1.1.2 SCOPE OF WORK**

This Section includes mobilization, demobilization, assembly and disassembly of equipment/plants including incidentals necessary to complete the work.

**1.1.3 MOBILIZATION**

a) The Contractor shall mobilize and put into operation all equipment and plants required to undertake the Contract.

b) Mobilization shall include the transferring to the job-sites of all equipment, plants, supplies and materials, personnel, and all items necessary for the execution and completion of the work, and shall also include the setting up of all equipment, instruments and all other plants until rendered operable, subject to the confirmation of the Engineer.

c) Sufficient supply of spares for the equipment and plants shall be carried on-site. Equipment/plants encountering breakdowns must be repaired on site by the most expeditious method possible at no cost to the Procuring Entity. In the event that the equipment/plants call for major repair works that cannot be undertaken at the site, the Contractor shall replace such equipment/plants with equal or better performance capacity at no additional mobilization costs to the Procuring Entity and the Contractor shall not be entitled to any time extension.

**1.1.4 DEMOBILIZATION**

Demobilization upon request of the Contractor and approved by the Engineer, shall include the following:

The dismantling, preparation and loading for removal and shipment of all Contractor's plant, equipment and personnel at each site after completion of the works.

**2.0 CONSTRUCTION PHOTOGRAPHS**

a) Provide record progress photographs taken at a fixed point and angle as, when and where directed by the Engineer at intervals of not more than ten (10) days. The photographs shall be sufficient in number and location to record the exact progress of works. The Contractor shall provide the Engineer all the photographs stored in CDs- properly labeled. Billing photographs shall be in 4R size with corresponding billboard indicating the name of the project and location, bill number, item number, name of the person taking the photograph, date taken and the on-going activity.

3.0 MONTHLY PROGRESS REPORT

a) The Contractor shall maintain a daily log describing the important events pertaining to the Works, the working hours, the number of laborers employed, effective operation time of equipment, overtime hours, delays due to meteorological and maritime conditions, lack of labor, materials or equipment, progress made including those for dredging and reclamation works, and instructions, notifications and recommendations made by the Engineer.

4.0 AS-BUILT DRAWINGS AND FINAL CONSTRUCTION REPORT

Within thirty (30) calendar days after the issuance of the Taking Over Certificate, the Contractor shall prepare and as-built drawings and a final construction report as draft. And within thirty (30) calendar days after the issuance of the Taking Over Certificate, the Contractor shall submit the Final Construction Report and Final As-Built drawings.

5.0 SAFETY

At the end of each day’s work, the site shall be left in safe condition, so that no part is in danger of toppling, or falling or creating hazards to personnel or equipment.

The construction site shall be properly lighted at night. Warning signs shall be properly located for the safety of the port users.

6.0 SPECIFICATIONS

1.0 RUBBER FENDER SYSTEMS

1. Material for fender systems such as rubber fenders and anchor bolts shall be supplied by the Contractor. **Rubber Dock Fenders shall be V-Type 400H x 1000L.**

2. The Contractor shall install the fender system properly according to the drawing and the instructions prepared by the Engineer.

3. Performance Requirements.

The fenders shall be procured in accordance with the performance characteristics, under 45% - 50% fender deflection, specified hereunder.

Type of Fender	Min. Energy Absorption (Ton-M)	Max. Reaction Force (Ton)
(1)	1.0	15
(2)	1.8	20
(3)	2.8	32

4. For V-type 400H x 1000H Fenders, it shall have a Reaction Force (R/F) of 294 KN and Energy Absorption (E/A) of 39.2 Kn-m.

5. Physical Properties

Material for rubber fenders will be one of the international accepted materials. Test methods shall conform to JIS K6301 or equivalent. The rubber material used for rubber fenders shall be a compound of natural rubber and synthetic rubber of high

quality having sufficient resilience, anti – aging, weather and wear resistant property according to the following table.

6. Anchor

Anchor Bolts and connecting hardware shall be fabricated from type SUS 304 stainless steel to the required shapes and sized as shown on the approved shop drawings, and conforming to JIS G 4303 or equivalent.

7. Testing

The Contractor shall be required to submit test certificates showing compliance to the above requirements. The test certificates should be certified by an independent inspection organization recommended by PPA and approved by the Engineer. All fenders shall be tested for performance. The fender shall be compressed repeatedly three times to the minimum deflection at speed from 2 to 8 cm. per minute.

The load and deflection values shall be recorded with a precision of 0.5 mm. The results shall be plotted in the form of load-deflection-energy absorption curves. The average data obtained in the second and third test loadings shall be considered as performance values. The tests and reporting shall be carried by an approved laboratory, witnessed by a PPA Representative and shall be supervised and certified by the independent inspection organization.

8. Sampling of Specimen

The specimens of rubber shall be taken at the mixing stage directly from each batch of rubber compound from manufacturing of fenders. The specimens shall be tested for compliance with requirements as specified in paragraph b of this Subsection.

9. Inspection for Dimension

a. The fenders shall be inspected by the independent inspection organization. All fenders to be installed shall be inspected for compliance with dimensions. Five percent (5%) of anchor bolts and fittings shall be selected at random and inspected. Material for bolts and fittings to be covered by certified organization.

b. Anchoring Bolt Holes in Fender

*Diameter of the Hole Pitch of the Hole Tolerance +2 mm + 4 mm*

c. Performance requirements shall conform to paragraph c of Subsection 3.13.1.3 As basis for acceptance of all finished fenders supplied, a tolerance of + 10% on the performance requirements indicated will be acceptable. The cost of tests and inspection required herein are all for the Contractor's account.

10. Marking

All fender units shall be clearly numbered and marked. Each fender shall have the following marking

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- a. Fender type and manufacturer's name or trademark
- b. Production serial number
- c. Date of manufacturing
- d. Main dimension (length, height)
- e. Bill number in accordance with the project code specified in the Bill of Quantities.

#### 11. Warranty

The Contractor shall guarantee the fenders against any defects that are attributable to faulty design and manufacture and shall also guarantee the performance of the fenders under normal working conditions. The guarantee shall be for a minimum period of 12 months from the date of the issuance of Taking-Over Certificate of the Works.

During the period of guarantee, repairs and replacement of defective fender units and/ or material shall be carried by the Contractor at his own cost.

### 7.0 CLEARING WORKS

The Contractor shall remove all temporary structures erected, excess materials and construction debris within the construction/port area upon completion of the project.