

Sacked Concrete	25mm	50mm
All other Concrete	50mm	90mm

**Sampling :** Provide suitable facilities and labor for obtaining representative samples of concrete for the Contractor's quality control and the Engineer's quality assurance testing. All necessary platforms, tools and equipment for obtaining samples shall be furnished by the Contractor.

## MIXING CONCRETE

### 1. GENERAL

- a. Concrete shall be thoroughly mixed in a mixer of an approved size and type that will insure a uniform distribution of the materials throughout the mass.
- b. All concrete shall be mixed in mechanically operated mixers. Mixing plant and equipment for transporting and placing concrete shall be arranged with an ample auxiliary installation to provide a minimum supply of concrete in case of breakdown of machinery or in case the normal supply of concrete is disrupted. The auxiliary supply of concrete shall be sufficient to complete the casting of a section up to a construction joint that will meet the approval of the Engineer.
- c. Equipment having components made of aluminum or magnesium alloys, which would be in contact with plastic concrete during mixing, transporting or pumping of Portland cement concrete, shall not be used.
- d. Concrete mixers shall be equipped with adequate water storage and a device for accurately measuring and automatically controlling the amount of water used.
- e. Materials shall be measured by weighing. The apparatus provided for weighing the aggregates and cement shall be suitably designed and constructed for this purpose. The accuracy of all weighing devices except that for water shall be such that successive quantities can be measured to within one percent of the desired amounts. The water measuring device shall be accurate to plus or minus 0.5 percent. All measuring devices shall be subject to the approval of the Engineer. Scales and measuring devices shall be tested at the expense of the Contractor as frequently as the Engineer may deem necessary to insure their accuracy.
- f. Weighing equipment shall be insulated against vibration or movement of other operating equipment in the plant. When the entire plant is running, the scale reading at cut-off shall not vary from the weight designated by the Engineer by more than one percent for cement, 1-½ percent for any size of aggregate, or one percent for the total aggregate in any batch.
- g. Manual mixing of concrete shall not be permitted unless approved by the Engineer.

### 2. MIXING CONCRETE AT SITE

- a. Concrete mixers may be of the revolving drum or the revolving blade type and the mixing drum or blades shall be operated uniformly at the mixing speed recommended by the manufacturer.

The pick-up and throw-over blades of mixers shall be restored or replaced when any part or section is worn 20 mm or more below the original height of the manufacturer's design. Mixers and agitators which have an accumulation of hard concrete or mortar shall not be used.

- b. When bulk cement is used and the volume of the batch is 0.5 m<sup>3</sup> or more, the scale and weigh hopper for Portland cement shall be separate and distinct from the aggregate hopper or hoppers.

The discharge mechanism of the bulk cement weigh hopper shall be interlocked against opening before the full amount of cement is in the hopper. The discharging mechanism shall be interlocked against opening when the amount of cement in the hopper is underweight by more than one percent or overweight by more than 3 percent of the amount specified.

- c. When the aggregates contain more water than the quantity necessary to produce a saturated surface dry condition, representative samples shall be taken and the moisture content determined for each kind of aggregate.
- d. The batch shall be so charged into the mixer that some water enter in advance of cement and aggregates. All water shall be in the drum by the end of the first quarter of the specified mixing time.
- e. Cement shall be batched and charged into the mixer by such means that it will not result in loss of cement due to the effect of wind, or in accumulation of cement on surfaces of conveyors or hoppers, or in other conditions which reduce or vary the required quantity of cement in the concrete mixture.
- f. Where required, synthetic fibrous reinforcement shall be added directly to the concrete mixer after placing the sufficient amount of mixing water, cement and aggregates.
- g. The entire contents of a batch mixer shall be removed from the drum before materials for a succeeding batch are placed therein. The materials composing a batch except water shall be deposited simultaneously into the mixer.
- h. All concrete shall be mixed for a period of not less than 3 minutes after all materials, including water, are in the mixer. During the period of mixing, the mixer shall operate at the speed for which it has been designed.
- i. Mixers shall be operated with an automatic timing device that can be locked by the Engineer. The time device and discharge mechanism shall be so interlocked that during normal operation no part of the batch will be discharged until the specified mixing time has elapsed.
- j. The first batch of concrete materials placed in the mixer shall contain a sufficient excess of cement, sand, and water to coat the inside of the drum without reducing the required mortar content of the mix. When mixing is to cease for a period of one hour or more, the mixer shall be thoroughly cleaned.
- k. In case of rubble concrete, proper mixture and placing of concrete and stones/rocks shall be in accordance to the approved plan. Methodology of work shall be approved by the Engineer.

### 3. MIXING CONCRETE IN TRUCKS

- a. Truck mixers, unless otherwise authorized by the Engineer, shall be of the revolving drum type, watertight, and so constructed that the concrete can be mixed to insure a uniform distribution of materials throughout the mass. All solid materials for the concrete shall be accurately measured and charged into the drum at the proportioning plant. Except as subsequently provided, the truck mixer shall be equipped with a device by which the quantity of water added can be readily verified. The mixing water may be added directly to the batch, in which case a tank is not required. Truck mixers may be required to be provided with a means by which the mixing time can be readily verified by the Engineer.
- b. The maximum size of batch in truck mixers shall not exceed the minimum rated capacity of the mixer as stated by the manufacture and stamped in metal on the mixer. Truck mixing shall, unless otherwise directed, be continued for not less than 100 revolutions after all ingredients, including water, are in the drum. The mixing speed shall not be less than 4 rpm, nor more than 6 rpm.
- c. Mixing shall begin within 30 minutes after the cement has been added either to the water or aggregate, but when cement is charged into a mixer drum containing water or surface-wet aggregate and when the temperature is above 32 °C, this limit shall be reduced to 15 minutes. The limitation in time between the introduction of the cement to the aggregate and the beginning of the mixing may be waived when, in the judgment of the Engineer, the aggregate is sufficiently free from moisture, so that there will be no harmful effects on the cement.
- d. When a truck mixer is used for transportation, the mixing time in stationary mixer may be reduced to 30 seconds and the mixing completed in a truck mixer. The mixing time in truck mixer shall be as specified for truck mixing.

### JOINTS

1. No reinforcement, corner protection angles or other fixed metal items shall be run continuously through joints containing expansion-joint filler, through crack-control joints in slabs on grade and vertical surfaces.
2. Preformed Expansion Joint Filler
  - a. Joints with Joint Sealant

At expansion joints in concrete slabs to be exposed, and at other joints indicated to receive joint sealant, preformed expansion-joint filler strips shall be installed at the proper level below the elevation with a slightly tapered, dressed-and-oiled wood strip temporarily secured to the top thereof to form a groove. When surface dry, the

groove shall be cleaned of foreign matter, loose particles, and concrete protrusions, then filled flush approximately with joint sealant so as to be slightly concave after drying.

**b. Finish of concrete at joints**

Edges of exposed concrete slabs along expansion joints shall be neatly finished with a slightly rounded edging tool.

**c. Construction Joints**

Unless otherwise specified herein, all construction joints shall be subject to approval of the Engineer. Concrete shall be placed continuously so that the unit will be monolithic in construction. Fresh concrete may be placed against adjoining units, provided the set concrete is sufficiently hard not to be injured thereby. Joints not indicated shall be made and located in a manner not to impair strength and appearance of the structure. Placement of concrete shall be at such rate that the surface of concrete not carried to joint levels will not have attained initial set before additional concrete is placed thereon. Lifts shall terminate at such levels as are indicated or as to conform to structural requirements as directed. If horizontal construction joints are required, a strip of 25mm square-edged lumber, beveled to facilitate removal shall be tacked to the inside of the forms at the construction joint. Concrete shall be placed to a point 25mm above the underside of the strip. The strip shall be removed one hour after the concrete has been placed. Any irregularities in the joint line shall be leveled off with a wood float, and all laitance removed. Prior to placing additional concrete, horizontal construction joints shall be prepared.

Construction Joint which is not indicated in the Drawings shall be located as to least affect the strength of the structure. Such locations will be pointed out by the Engineer.

## **PREPARATION FOR PLACING**

Hardened concrete, debris and foreign materials shall be removed from the interior of forms and from inner surfaces of mixing and conveying equipment. Reinforcement shall be secured in position, and shall be inspected, and approved before placing concrete. Runways shall be provided for wheeled concrete-handling equipment. Such equipment shall not be wheeled over reinforcement nor shall runways be supported on reinforcement.

Notice of any concreting operations shall be served to the Engineer at least three (3) days ahead of each schedule.

## **PLACING CONCRETE**

### **1. Handling Concrete**

Concrete shall be handled from mixers and transported to place for final deposit in a continuous manner, as rapidly as practicable, and without segregation or loss of ingredients until the approved unit of work is completed. Placing will not be permitted when the sun, heat, wind or limitations of facilities furnished by the Contractor prevent proper finishing and curing of the concrete. Concrete shall be placed in the forms, as close as possible in final position, in uniform approximately horizontal layers not over 40cm deep. Forms splashed with concrete and reinforcement splashed with concrete or form coating shall be cleaned in advance of placing subsequent lifts. Concrete shall not be allowed to drop freely

more than 1.5m in unexposed work nor more than 1.0 m in exposed work; where greater drops are required, tremie or other approved means shall be employed.

2. Time Interval between Mixing and Placing

Concrete mixed in stationary mixers and transported by non-agitating equipment shall be placed in the forms within 30 minutes from the time ingredients are charged into the mixing drum. Concrete transported in truck mixers or truck agitators shall be delivered to the site of work, discharged in the forms within 45 minutes from the time ingredients are discharged into the mixing drum. Concrete shall be placed in the forms within 15 minutes after discharged from the mixer at the jobsite.

3. Hot Weather Requirements

The temperature of concrete during the period of mixing while in transport and/or during placing shall not be permitted to rise above 36 °C. Any batch of concrete which had reached a temperature greater than 36 °C at any time in the aforesaid period shall not be placed but shall be rejected, and shall not thereafter be used in any part of the permanent works.

a. Control Procedures

Provide water cooler facilities and procedures to control or reduce the temperature of cement, aggregates and mixing handling equipment to such temperature that, at all times during mixing, transporting, handling and placing, the temperature of the concrete shall not be greater than 36 °C.

b. Cold Joints and Shrinkage

Where cold joints tend to form or where surfaces set and dry too rapidly or plastic shrinkage cracks tend to appear, concrete shall be kept moist by fog sprays, or other approved means, applied shortly after placement, and before finishing.

c. Supplementary Precautions

When the aforementioned precautions are not sufficient to satisfy the requirements herein above, they shall be supplemented by restricting work during evening or night. Procedure shall conform to American Concrete Institute Standard ACI 305.

4. Conveying Concrete by Chute, Conveyor or Pump

Concrete may be conveyed by chute, conveyor, or pump if approved in writing. In requesting approval, the Contractor shall submit his entire plan of operation from the time of discharge of concrete from the mixer to final placement in the forms, and the steps to be taken to prevent the formation of cold joints in case the transporting of concrete by chute, conveyor or pump is disrupted. Conveyors and pumps shall be capable of expeditiously placing concrete at the rate most advantageous to good workmanship. Approval will not be given for chutes or conveyors requiring changes in the concrete materials or design mix for efficient operation.

a. Chutes and Conveyors

Chutes shall be of steel or steel lined wood, rounded in cross section rigid in construction, and protected from overflow. Conveyors shall be designed and

operated and chute sections shall be set, to assure a uniform flow of concrete from mixer to final place of deposit without segregation of ingredients, loss of mortar, or change in slump. The discharged portion of each chute or conveyor shall be provided with a device to prevent segregation. The chute and conveyor shall be thoroughly cleaned before and after each run. Waste material and flushing water shall be discharged outside the forms.

- b. Pumps shall be operated and maintained so that a continuous stream of concrete is delivered into the forms without air pockets, segregation or changes in slump. When pumping is completed, concrete remaining in the pipeline shall be ejected and wasted without contamination of concrete already placed. After each operation, equipment shall be thoroughly cleaned and the flushing water shall be splashed outside the forms.

#### 5. Wall and Abutments

No load shall be placed upon finished walls, foundations or abutments until authorized by the Engineer. Minimum time before loading shall be 7 days.

#### 6. Concrete Placing on Wharf

When placing concrete on wharf decks, the Contractor shall:

Ensure that rate of placing is sufficient to complete proposed placing, finishing and curing operations within the scheduled time; that experienced finishing machine operators and concrete finishers are provided to finish the deck; that curing equipment and finishing tools and equipment are at the site of work and in satisfactory condition for use.

Immediately prior to placing, the Contractor shall place scaffolding and wedges and make necessary adjustments. Care shall be taken to ensure that settlement and deflection due to added weight of concrete will be minimal. The Contractor shall provide suitable means to readily permit measurement of settlement deflection as it occurs.

Should any event occur which, in opinion of the Engineer, would prevent the concrete conforming to specified requirements, the Contractor shall discontinue placing of concrete until corrective measures are provided satisfactory to the Engineer. If satisfactory measures are not provided prior to initial set of concrete in affected areas, the Contractor shall discontinue placing concrete and install a bulkhead at a location determined by the Engineer. Concrete in place beyond bulkheads shall be removed. The Contractor shall limit the size of casting to that which can be finished before beginning of initial set.

#### COMPACTION

1. Immediately after placing, each layer of concrete shall be completed by internal concrete vibrators supplemented by hand-spading, rodding, and tamping. Tapping or other external vibration of forms will not be permitted unless specifically approved by the Engineer. Vibrators shall not be used to transport concrete inside the forms. Internal vibrators submerged in concrete shall maintain a speed of not less than 7,000 impulses per minute. The vibrating equipment shall at all times be adequate in number of units and power to properly consolidate all concrete.
2. Spare units shall be on hand as necessary to insure such adequacy. The duration of

vibrating equipment shall be limited to the time necessary to produce satisfactory consolidation without causing objectionable segregation. The vibrator shall not be inserted into the lower courses that have begun to set. Vibrator shall be applied vertically at uniformly spaced points not further apart than the visible effectiveness of the machine.

#### **EPOXY BONDING COMPOUND**

Before depositing new concrete on or against concrete that has set, the surfaces of the set concrete shall be thoroughly cleaned so as to expose the coarse aggregate and be free of laitance, coatings, foreign matter and loose particles. Forms shall be re-tightened. The cleaned surfaces shall be moistened, but shall be without free water when concrete is placed. ASTM C 881. Provide Type I for bonding hardened concrete to hardened concrete; Type II for bonding freshly mixed concrete to hardened concrete; and Type III as a binder in epoxy mortar or concrete, or for use in bonding skid-resistant materials to hardened concrete. Provide Class B if placement temperature is between 4 to 16 °C; or Class C if placement temperature is above 16°C.

#### **FINISHES OF CONCRETE**

Within 12 hours after the forms are removed, surface defects shall be remedied as specified herein. The Temperature of the concrete, ambient air and mortar during remedial work including curing shall be above 10 °C. Fine and loose material shall be removed. Honeycomb, aggregate pockets, voids over 13mm in diameter, and holes left by the rods or bolts shall be cut out to solid concrete, reamed, thoroughly wetted, brush-coated with neat cement grout, and filled with mortar. Mortar shall be a stiff mix of one part Portland cement to not more than 2 parts fine aggregate passing the No. 16 mesh sieve, with a minimum amount of water. The color of the mortar shall match the adjoining concrete color. Mortar shall be thoroughly compacted in place. Holes passing entirely through walls shall be completely filled from the inside face by forcing mortar through the outside face. Holes which do not pass entirely through wall shall be packed full. Patchwork shall be finished flush and in the same plane as adjacent surfaces. Exposed patchwork shall be finished to match adjoining surfaces in texture and color. Patchwork shall be damp-cured for 72 hours. Dusting of finish surfaces with dry material or adding water to concrete surfaces will not be permitted.

#### **CONCRETE FINISHING DETAILS**

##### **1. Concrete Paving**

After concrete is placed and consolidated, slabs shall be screeded or struck off. No further finish is required.

##### **2. Smooth Finish**

Required only where specified; screed concrete and float to required level with no coarse aggregate visible. After surface moisture has disappeared and laitance has been removed, the surface shall be finished by float and steel trowel. Smooth finish shall consist of thoroughly wetting and then brush coating the surfaces with cement to not more than 2 parts fine aggregate passing the no. 30 mesh sieve and mixed with water to the consistency of thick paint.

##### **3. Broom Finish**

Required for paving; the concrete shall be screeded and floated to required finish level with no coarse aggregate visible. After the surface moisture has disappeared and laitance has been removed, surface shall be float-finished to an even, smooth finish. The floated surfaces shall be broomed with a fiber bristle brush in a direction transverse to the direction of the main traffic.



**ITEM 07 : GEOTEXTILE FABRIC****SCOPE OF WORK**

This work covers all the following requirements regarding the installation of geotextile (filter fabric) in accordance with the lines, grades, and dimensions shown in the drawings.

**MATERIAL REQUIREMENTS**

The geotextile fabric shall meet the following requirements in full. If required, a sample of 1.0 sq.m. shall be supplied to the Engineer for approval and retention for purposes of comparative testing against materials randomly sampled from the site.

**1. PHYSICAL PROPERTIES**

- a. The geotextile material shall be a nonwoven needle punched type comprising of needle punched polypropylene fibers or its equivalent.
- b. The geotextile material shall be UV stabilized to ensure retention of minimum 70% original tensile strength after 90 days exposure to sunlight. The manufacturer shall submit test results to the Engineer for approval.
- c. The geotextile must be highly resistant to long term contact with damp cementitious substances or acid or alkali solutions in the pH range 2-13. The manufacturer shall submit test data to ensure resistance of the polymer.

**2. MECHANICAL AND HYDRAULIC PROPERTIES**

The geotextile supplier is required to certify that the materials delivered to site will be proven to meet or exceed the following properties:

TECHNICAL PROPERTIES	UNIT	MINIMUM	TEST STANDARD
<b>A. Physical Characteristics:</b>			
Minimum Mass (per unit area)	(g/m <sup>2</sup> )	540	ASTM D5261
Thickness (F=2 kpa)	mm	4.5	ASTM D5199
<b>B. Mechanical Properties:</b>			
Tensile Strength (md/cd)	kN/m	13/22	ASTM D4595
Tensile elongation (md/cd)	%	90/40	ASTM D4595
CBR Puncture Resistance	N	3000	ASTM D6241
<b>C. Hydraulic Properties:</b>			
Effective Opening Size (O <sub>90</sub> Wet Sieving)	(mm)	0.08	ASTM D4751
Water Permeability: Permittivity	(s <sup>-1</sup> )	0.5	ASTM D4491

**EXECUTION**

1. The geotextile shall be delivered to site with an outer wrapper to protect it from exposure to the elements.
2. Prior to laying of geotextile filter, stone filler shall be placed between gaps or voids of armour / core rocks as likewise mentioned in the requirements of Item "Rock Works".
3. The non-woven geotextile filter shall be installed and lay manually at site as per design drawings. The filter shall be laid lengthwise down slopes and appropriately anchored along the top edge.
4. The Engineer reserves the right to sample geotextile delivered to site for individual quality control testing at the contractor's expense. A material not meeting the manufacturer's certified values will be rejected from the site.
5. The geotextile shall be proven to resist dynamic puncture damage when subject to impact stress from stone armour (200-400 kg.) dropped from a minimum height of 2.0 m. and should be laid on at least 1-foot sand and gravel bedding. Geotextile failing to resist puncture shall not be accepted.
6. To facilitate site Quality Assurance, each roll of geotextile delivered to site shall be clearly labeled with brand name, grade, and production batch number.
7. Geotextile overlaps shall be at least 1.0 m unless otherwise stated on the drawings. Alternatively, geotextile overlaps are to be heat-welded or sewn using appropriate polypropylene or other synthetic thread and portable hand sewing equipment.

**ITEM 08 : MOORING AND FENDERING SYSTEM**

**SCOPE OF WORK**

1. The work includes furnishing of all labor, materials and equipment to complete the installation of mooring bollards and fenders in piers/wharves.
2. The work shall include the supply, transport, handling, storage and installation of fenders systems in the newly constructed piers.
3. The Contractor shall furnish and install the necessary fittings as shown on the drawings and/or specified.

Supplementary parts necessary to complete and install each item of works shall be included whether or not shown or specified. The Contractor shall furnish to relevant trades all anchors, fastenings, inserts, fittings, fixtures or the like to be installed on or required for securing the works.

The Contractor shall submit shop drawings of all fitting works prior to placing orders and commencement of any fabrication.

**MATERIAL REQUIREMENTS**

**MOORING SYSTEM**

Designated load capacity of mooring bollards shall be as shown in the drawings, and shall be referred to as the maximum load capacity. The mooring bollards shall be at rupture stage upon reaching the maximum load capacity.

Mooring bollards shall be of the dimensions, weights, capacities and designs as shown in the drawings and shall be fabricated by approved manufacturer with cast steel conforming to the requirements indicated in the plan/drawings, or approved equivalent.

The size of the bolts, nuts and washers shall be in accordance with the specifications provided in the plans/drawings. The anchor plate shall be connected to the holding down bolt as shown in the plans/drawings. All bolts, nuts, washers etc., that are exposed shall be hot-dip galvanized.

Samples of the bolts, nuts, washers and anchor plates shall be submitted to the Engineer for approval before being used in the Works.

The upper part of bollards and base plates which are not embedded in concrete shall be painted. The surface of bollards shall be cleaned thoroughly by wire brush or other means prior to painting to remove rust or any other contamination which may interfere with bond of paint to metal.

The exposed surface shall be coated with rust proof paint and finishing paint, which shall be coal-tar epoxy of 120m micron thickness in accordance with JIS K5623 or the approved standard.

**Base Steel:**

Chemical composition and mechanical properties of base metal to be used for fabrication of mooring bollard and its accessories shall comply with ASTM A36 and other required standard stated therein.

**Concrete Foundation :**

Concrete foundation for mooring bollards shall conform to the requirements of the Section concerning "Reinforced Concrete".

**Visual Inspection :**

All mooring bollards delivered to Site shall be inspected by the Engineer for any signs of flaws or defect inimical to usage.

**Mill Test Certificates:**

Two (2) copies of mill test reports shall be submitted certifying that materials meet the specified standards.

**Test Inspection:**

Inspection of all materials and methods of fabrication shall be carried out by the Contractor. However, the Engineer reserves the right to inspect all facilities at any time during the manufacture to ensure that the materials and workmanship are in accordance with Specifications and the best of workmanship.

## FENDER SYSTEM

The rubber fenders should comply with the performance requirements specified in the table provided on the plan/drawings of Rubber Dock Fenders (RDF).

### PHYSICAL PROPERTIES OF MATERIALS

The rubber for the fenders shall be of high quality natural rubber, synthetic rubber or mixed rubber blended with carbon black used in the rubber industry and shall have sufficient resilience and anti-ageing, weathering, abrasion, wear and oil resistant properties. The rubber dock fenders shall be free from bubbles, cracks and other harmful defects.

The physical properties of the rubber compound used for the fenders shall comply with the following requirements:

**Physical Properties and Test Method**

Test Item		Properties	Test Method	
Physical Test	Before Aging	Tensile Strength	160kg/sq.m minimum	Test piece: Dumbell No. 3
		Elongation	350% minimum	ASTM D412
		Hardness	76Hs maximum	ASTM D1456
	After Aging	Tensile Strength	Not less than 80% of original value	Spring Type hardness test (Type A)
		Elongation		ASTM D2240
		Hardness		ASTM D412
	Compression Test		30% maximum	Aging by air heating: 70±1°C x 96 hours.
				Heat treatment: 70±1°C x 22 hours.
				ASTM D395

Note: Equivalent Standards are acceptable.

### FITTINGS AND ANCHORAGE

Anchor bolts and connecting hardware shall be fabricated using type of steel specified and to the required shapes and sizes shown on the approved plan/drawings.

### TESTING, SAMPLING, INSPECTION, ACCEPTANCE, MARKING AND PACKAGING

#### Testing

All rubber dock fenders shall be tested for performance. It shall pass the required energy absorption and reaction force at a certain deflection as indicated in the plan.

The Contractor shall be required to submit test certificates showing compliance to the above requirements. The test certificates shall be certified by an independent testing institute / organization recognized by the Authority.

The standard performance testing methodology shall be Method B, to wit:

1. Fender temperature shall be stabilized at 23 degrees plus or minus 5 degrees centigrade for at least 24 hours before compression testing.
2. Break-in of fender by deflecting 3 times to rated deflection.
3. Removed load from the RDF and allow recovering for a minimum of 1 hour.
4. Deflect RDF at speed of 2-8 cm/min once to rated deflection.

The testing apparatus shall be calibrated and certified within plus or minus 1% in accordance with ISO or equivalent JIS or ASTM requirements. Calibration shall be traceable to a national/international standard and shall be performed annually by an accredited third party organization. The RDF performance testing center shall be subjected to accreditation by PPA and notation and /or certification by DPWH-BRS prior to acceptance.

#### Inspection

All fenders of each type shall be inspected for compliance to specified dimensions and all fenders shall be inspected by the Engineer for any sign of flaw or defect inimical to its use.

All anchor bolts and fittings shall be inspected. The material used for the fabrication of bolts and fittings shall be covered by the manufacturer's certified mill certificate and shall be verified by the Authority.

All RDF items/units shall be clearly numbered and marked indicated the following:

#### Acceptance Tolerance

The acceptance tolerance shall be based on the following:

1. Fender Dimension
 

Length	:	-2% to +4%
Width	:	-2% to +4%
Height	:	-2% to +4%
Thickness	:	-2% to +8%
2. Anchor Bolt Holes in Fender
 

Diameter of the Hole	:	+2.0mm
Pitch of the Hole	:	+4.0mm
3. Acceptance tolerance for all fenders supplied shall be as follows:
 

E = Energy absorption,	$E \geq$ Specified E but not less than 10% of the specified E
R = Reaction force,	$R \leq$ Specified R but not more than

10% of the specified R

### Marking

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

1. Fender type and manufacturer's name or trade mark
2. Production serial number
3. Date of manufacture or its abbreviation
4. Main dimensions
5. Project identification as follows:

Name of Port/Project: \_\_\_\_\_

Year supplied \_\_\_\_\_

### Packaging

The fenders shall be packaged on wooden crate or wrapped individually with Polypropylene sheets except when shipped containerized. The bolts and fittings should be placed in crates and suitably treated for protection when transported by sea and stored in port areas.

## EXECUTION

### MOORING / FENDERING SYSTEM

All units shall be installed at the locations shown on the drawings and as directed by the Engineer.

**ITEM 9 : PROJECT BILLBOARD****SPECIFICATION**

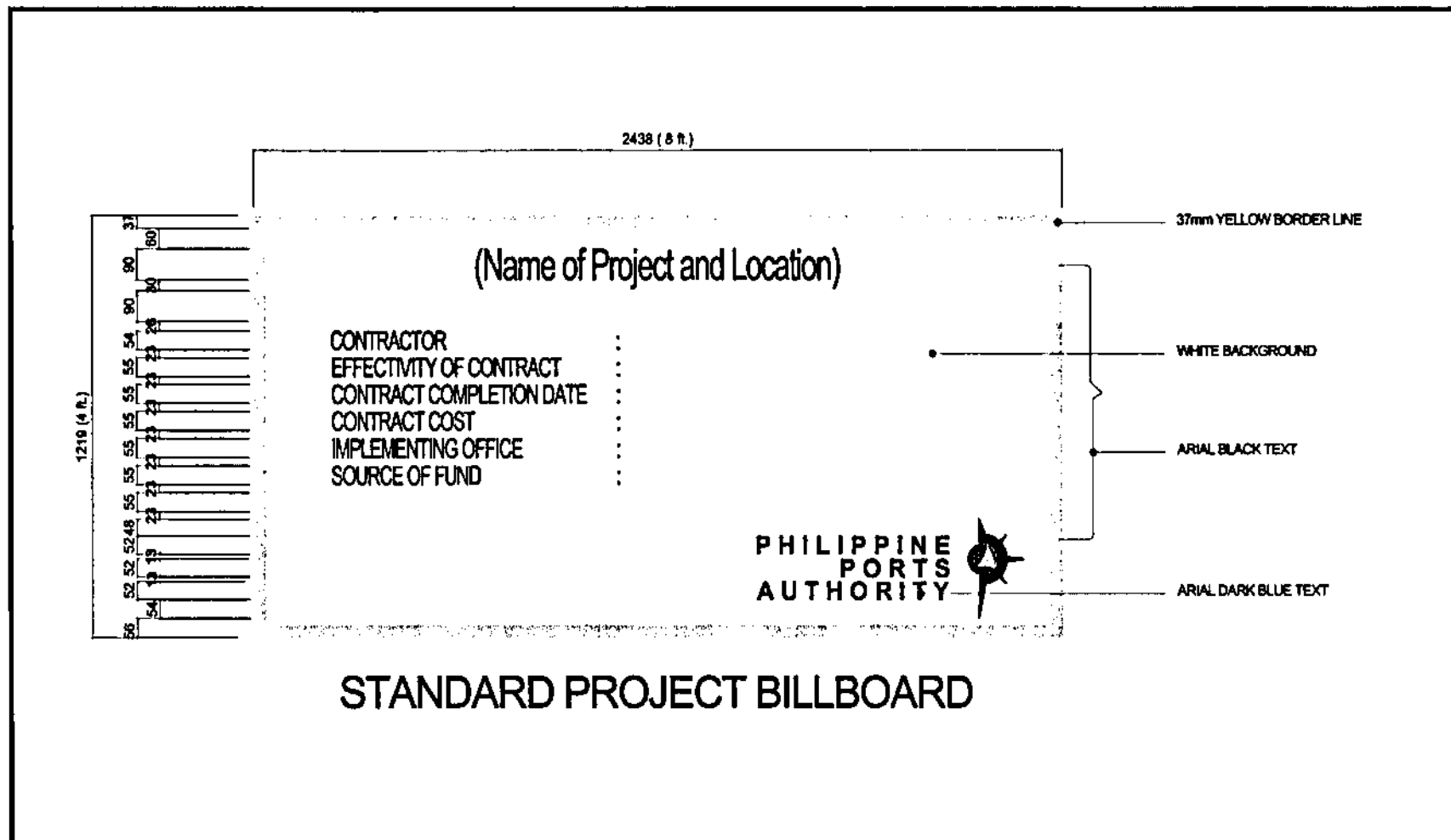
The Project Billboard shall be installed at location(s) designated by the Engineer.

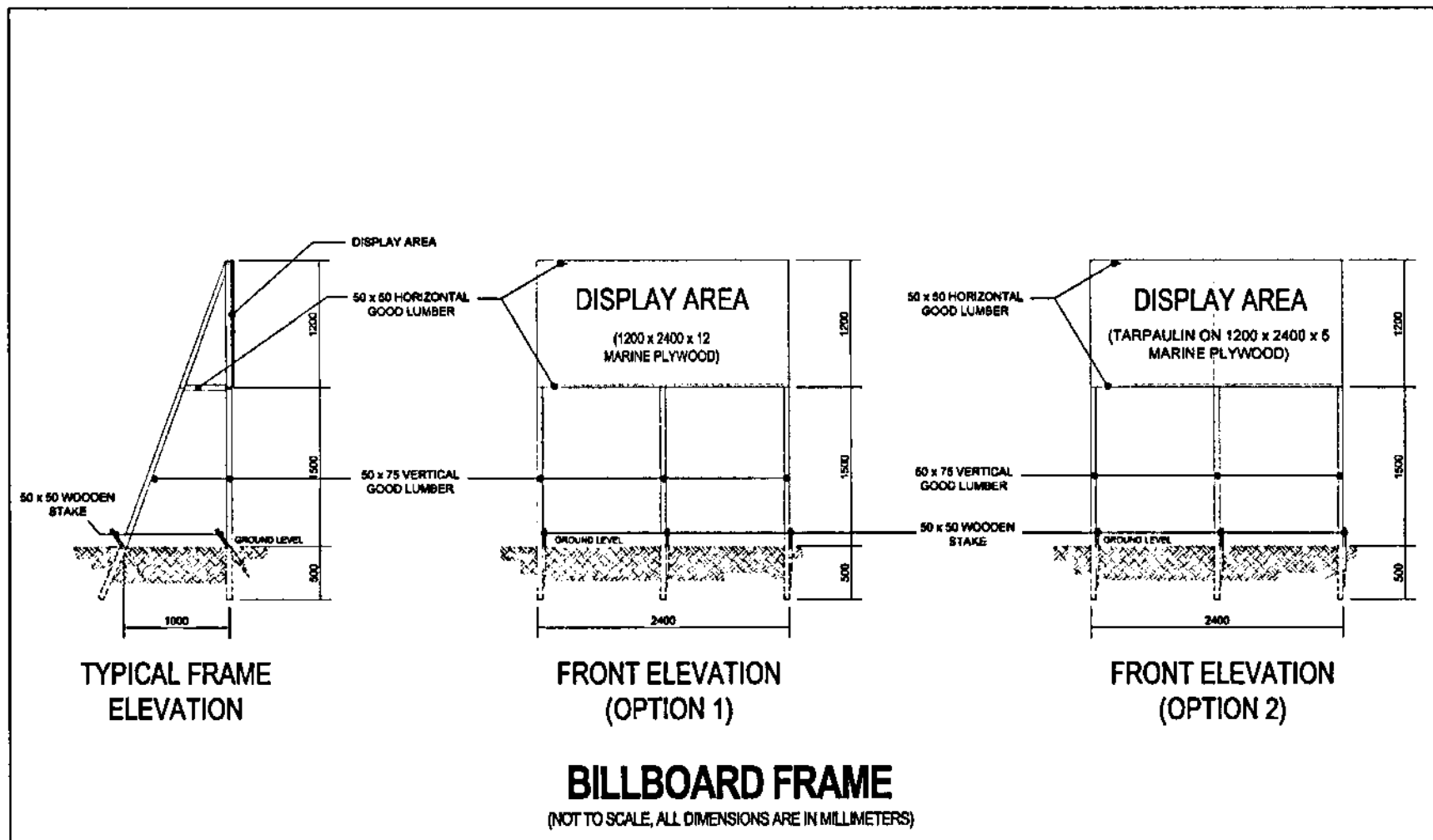
The size and specifications of materials for the standard billboard shall be 4ft. x 8ft. (1,200mm x 2,400mm) using ½ inch (12mm) marine plywood or tarpaulin poster on 3/16 inch (5mm) marine plywood.

Project billboards shall not contain Name(s) and/or picture(s) of any personages.

See attached drawings for further details of the standard billboard.







# ITEM 10 : SAFETY SIGNAGES AND BARRICADES

## DESCRIPTION

This work includes the furnishing and installing of safety signages and barricades in accordance with the specifications and to the details shown below in the drawings, or as directed by the Engineer.

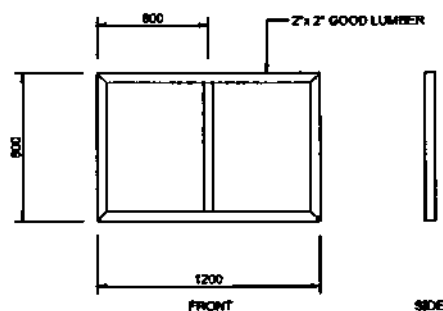
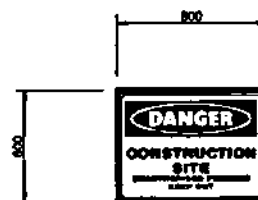
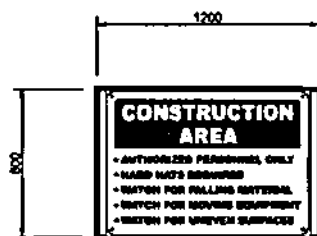
## SPECIFICATION

The Signage's and Barricades shall be installed at location(s) designated by the Engineer.

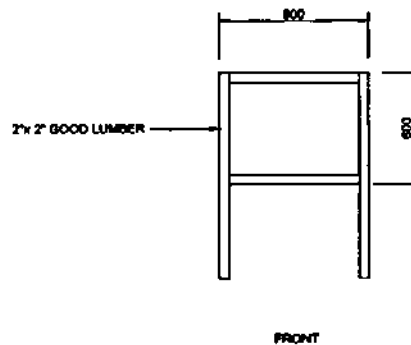
The sizes of the standard signages shall be 2-2/3ft x 4ft (800mm X 1,200mm) for fixed type and 2ft x 2-2/3ft (600mm x 800mm) for mobile type. For barricade standard 2ft x 2-2/3ft (600mm x 800mm) shall be provided.

The materials to be used for signages and barricades are ½ inch (12mm) marine plywood or tarpaulin poster on 2" x 2" (50mm x 50mm) good lumber frame (see drawing below).

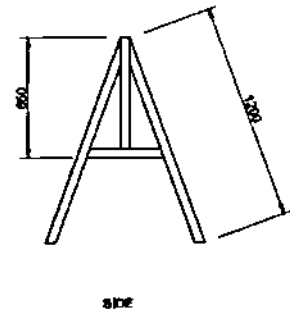
The printing or painting shall be the discretion of the Engineer.



FRAMING FOR 0.80m x 1.20m SIGNAGES



FRAMING FOR 0.60m x 0.80m SIGNAGES AND BARRICADES

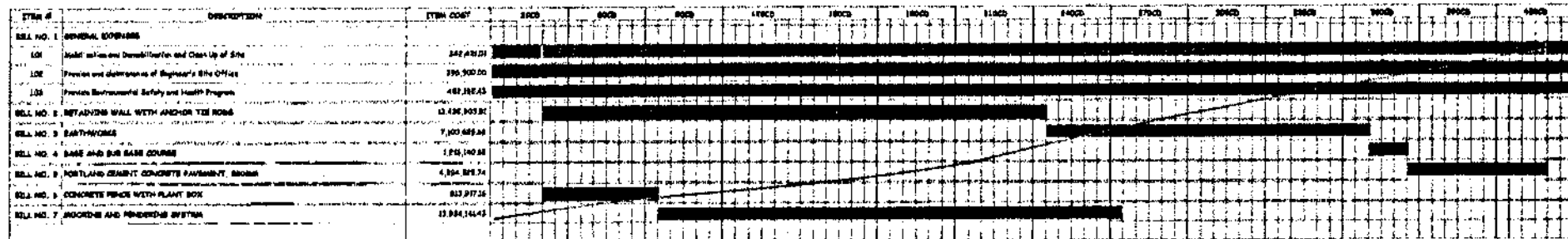


## STANDARD PLAN FOR SIGNAGES AND BARRICADES

***SECTION VII***

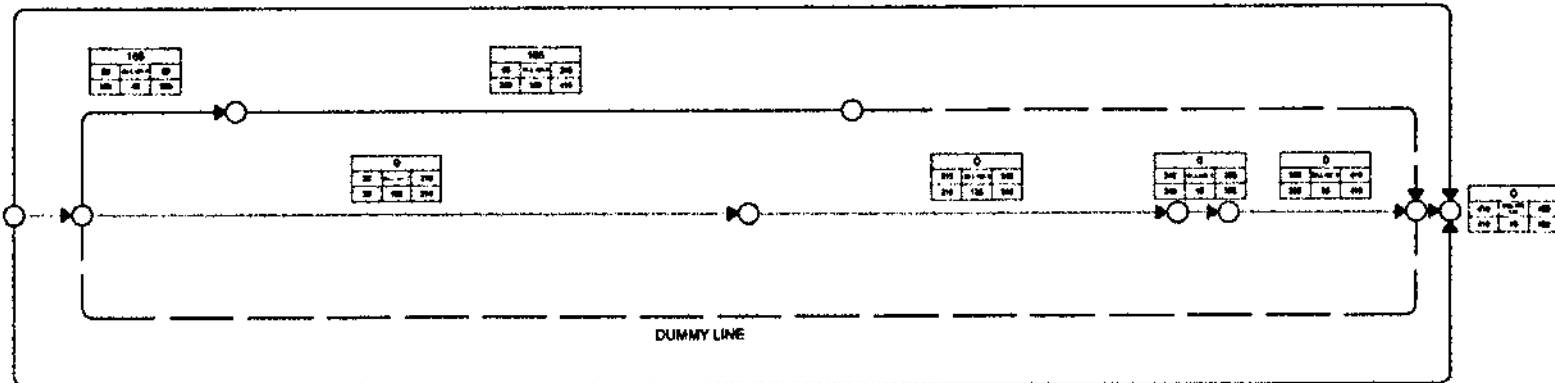
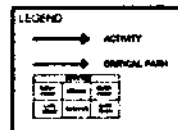
***DRAWINGS  
(APPROVED PLANS)***

## GANTT CHART WITH PERT/ CPM - CONSTRUCTION SCHEDULE



CONTRACT DURATION = 420 CALENDAR DAYS

NOTE:  
CONTRACT DURATION INCLUDES CONSIDERATIONS OF SUNDAYS, HOLIDAYS, AND DUE TO UNFAVORABLE WEATHER CONDITIONS



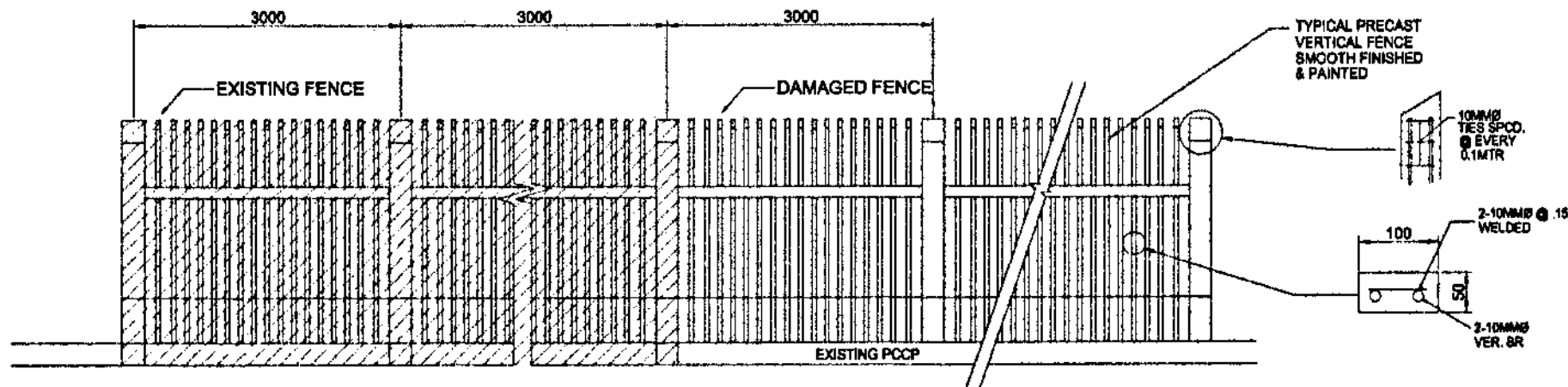
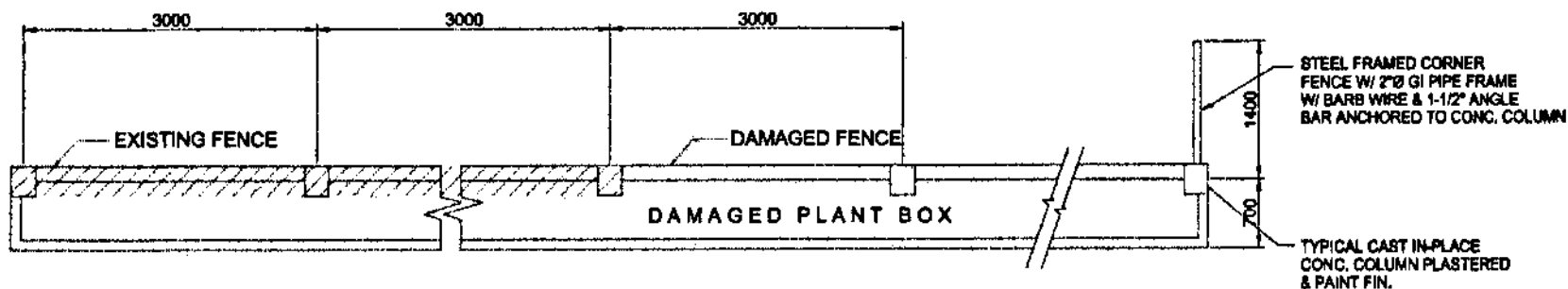
CASHFLOW	1ST MONTH	2ND MONTH	3RD MONTH	4TH MONTH	5TH MONTH	6TH MONTH	7TH MONTH	8TH MONTH	9TH MONTH	10TH MONTH	11TH MONTH	12TH MONTH	13TH MONTH	14TH MONTH
Monthly Projected Physical Accomplishment	2.74%	9.92%	9.92%	10.92%	10.92%	10.92%	10.92%	9.81%	5.08%	4.18%	4.18%	5.35%	8.07%	4.37%
Monthly Cumulative Projected Physical Accomplishment	2.74%	9.08%	18.99%	29.91%	39.83%	50.75%	60.67%	70.58%	75.66%	80.04%	84.22%	89.57%	97.64%	100.00%
Monthly Projected Cash Flow	PHP 1,180,838.88	PHP 2,672,373.40	PHP 4,166,684.62	PHP 4,652,118.88	PHP 4,652,118.88	PHP 4,652,118.88	PHP 4,652,118.88	PHP 4,148,781.88	PHP 2,164,018.82	PHP 1,788,957.34	PHP 1,788,957.34	PHP 2,351,672.00	PHP 2,888,888.77	PHP 1,847,872.12
Monthly Cumulative Projected Cash Flow	PHP 1,180,838.88	PHP 3,853,212.28	PHP 7,999,897.70	PHP 12,440,836.58	PHP 16,893,045.42	PHP 21,345,164.28	PHP 25,797,283.14	PHP 29,945,964.83	PHP 32,109,981.85	PHP 33,898,939.19	PHP 35,687,896.53	PHP 37,839,568.53	PHP 40,698,456.10	PHP 42,315,227.21

	PROJECT TITLE	SHEET CONTENT	SUBMITTED BY	CHECKED / REVIEWED BY	APPROVED	SHEET NO.
	RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE	CONSTRUCTION SCHEDULE CASH FLOW PERT-CPM NETWORK DIAGRAM	BERNARD CALLEDO PORT MANAGER	REYNARD C. PARAFINA MANAGER, PMO	JAMES J. GANTALAO AGM, ENGINEERING OFFICE	1 1
	LOCATION: PORT OF MAABIN, SOUTHERN LEYTE					





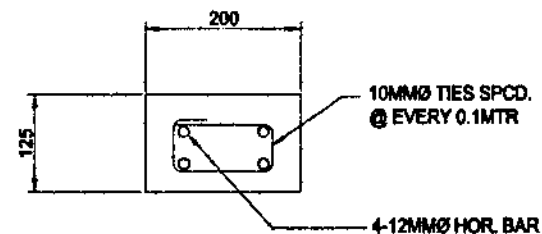
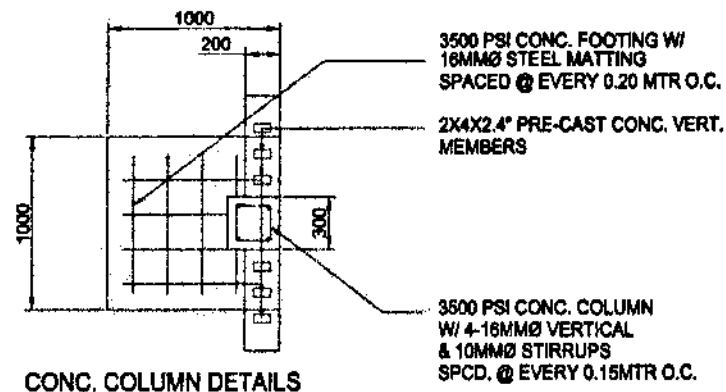
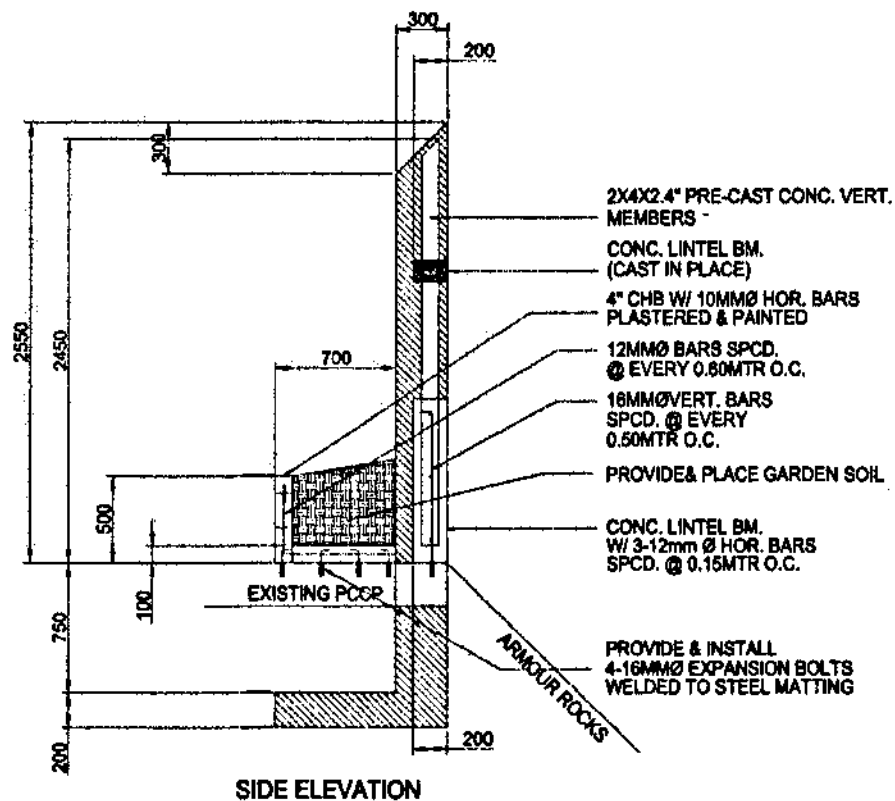
**FENCE PLAN**  
SCALE: 1:200



**FENCE TYPICAL ELEVATION**  
SCALE: 1:50



PROJECT TITLE:	SHEET CONTENT:	SUBMITTED BY:	CHECKED / REVIEWED BY:	APPROVED BY:	SHEET NO.
<b>RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE</b>	AS SHOWN	BERNARD C. CALLEDO PORT MANAGER	REYNARD C. PARAFINA MANAGER, PRC	JAMES J. GANTALAO ADM. ENGINEERING OFFICE	2 9
LOCATION: PORT OF MANILA					

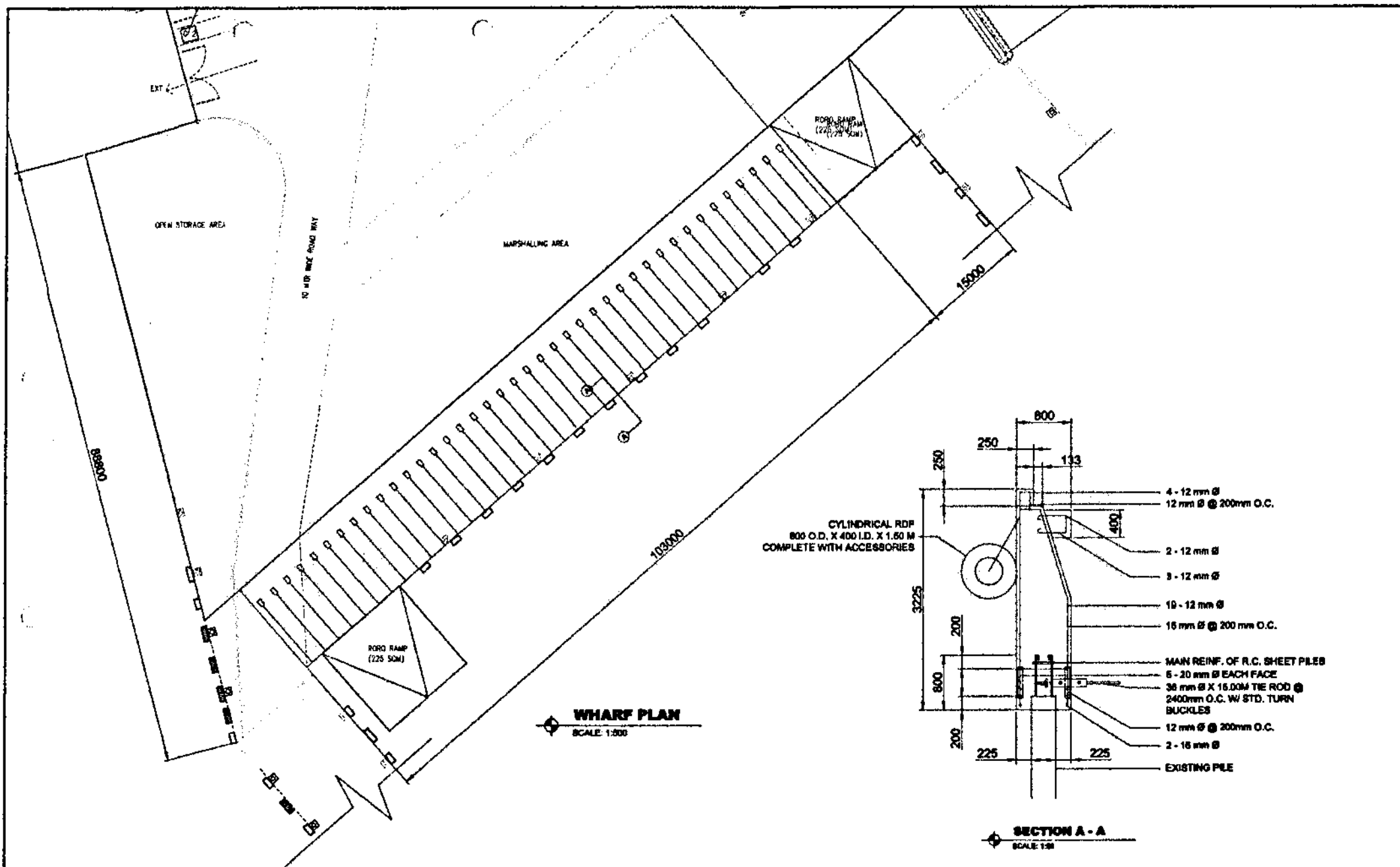


### COLUMN AND LINTEL BEAM DETAILS

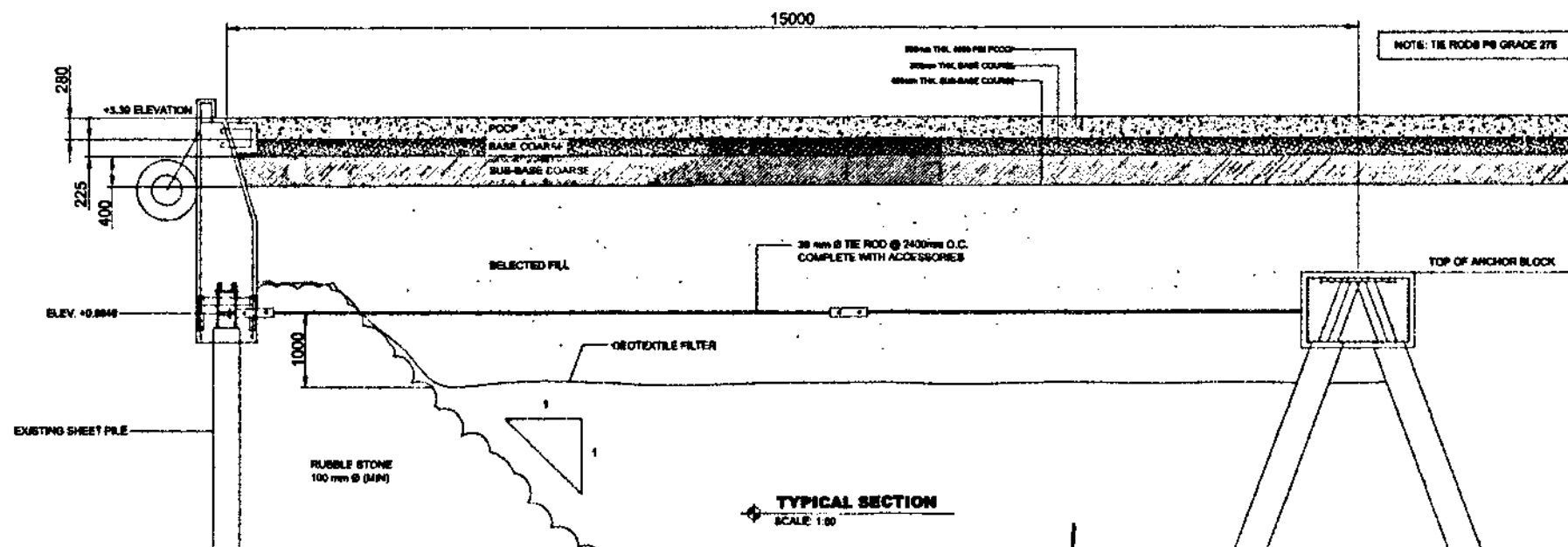
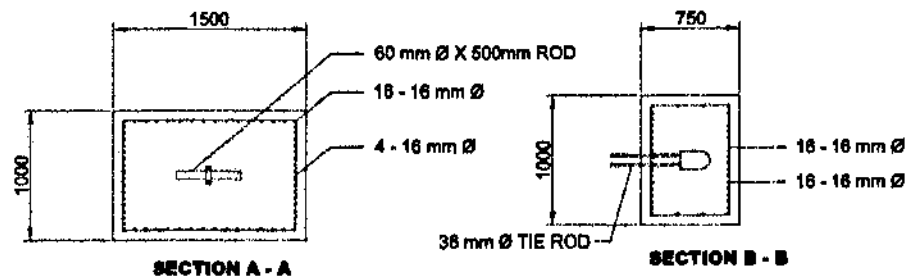
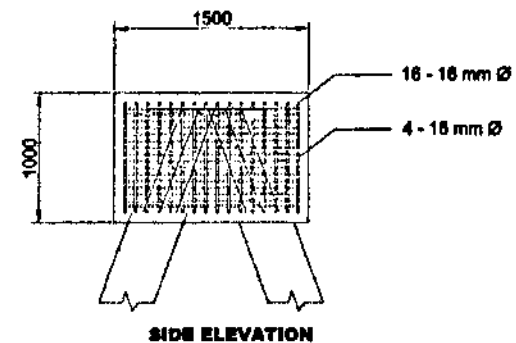
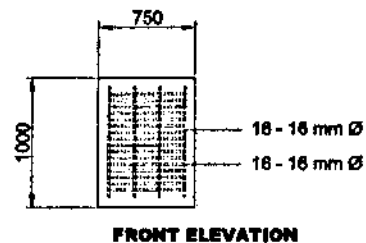
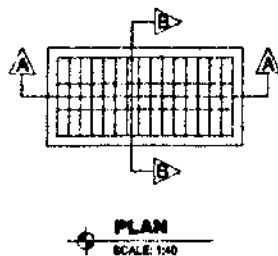
SCALE: NTS

	<p>PROJECT TITLE: <b>RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE</b></p> <p>LOCATION: PORT OF MAGNIN</p>	<p>SHEET CONTENT: <b>AS SHOWN</b></p>	<p>SUBMITTED BY: <b>BERNARD C. CALLEDO</b> PORT MANAGER</p>	<p>CHECKED / REVIEWED BY: <b>REYNARD C. PARAFINA</b> MANAGER, PWD</p>	<p>APPROVED BY: <b>JAMES J. GANTALAO</b> ADM. - ENGINEERING OFFICE</p>	<p>SHEET NO. <b>3</b> 8</p>
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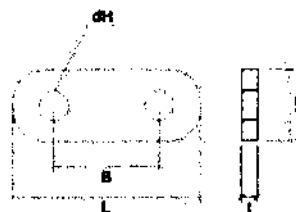
	<b>PROJECT TITLE:</b> <b>RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE</b> <b>LOCATION: PORT OF MAMIN</b>	<b>INSET CONTENT:</b> AS SHOWN	<b>SUBMITTED BY:</b>  BERNARD C. CALLEDO RTR MANAGER	<b>CHECKED / REVIEWED BY:</b> REYNARD C. PARAFINA MANAGER, PPD	<b>APPROVED BY:</b> JAMES J. GANTALAO ADM. - PORTMANAGEMENT OFFICE	<b>SHEET NO.</b> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">9</div> </div>
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	<p>PROJECT TITLE: <b>RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE</b></p> <p>LOCATION: PORT OF MAJUB</p>	<p>SHEET CONTENT: <b>AS SHOWN</b></p>	<p>SUBMITTED BY: <b>BERNARD C. CALLEDO</b> PORT MANAGER</p>	<p>CHECKED / REVIEWED BY: <b>REYNARD C. PARAFINA</b> MANAGER, PDD</p>	<p>APPROVED BY: <b>JAMES J. GANTALAO</b> ACM - ENGINEERING OFFICE</p>	<p>SHEET NO. <b>5</b> <b>9</b></p>
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## GENERAL NOTES FOR TIE ROD (HIGH TENSION STEEL 45)

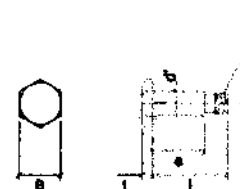
1. ALL TIE ROD ACCESSORIES SHALL BE BE EQUAL OR GREATER IN STRENGTH THAN THE TIE ROD PROPER.
2. BREAKING POINT = 7000 KG/CM<sup>2</sup> (MINIMUM)
3. YIELD STRESS = 4500 or MORE KG/CM<sup>2</sup> (MINIMUM)
4. ALLOWABLE STRESS = 1,800 KG/CM<sup>2</sup> (MINIMUM)
5. ELONGATION = 20% (MINIMUM)
6. SAFETY FACTOR = BREAKING POINT/ALLOWABLE STRESS = 3.89



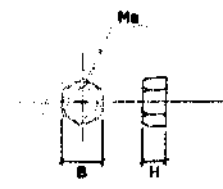
PLATE



WASHER

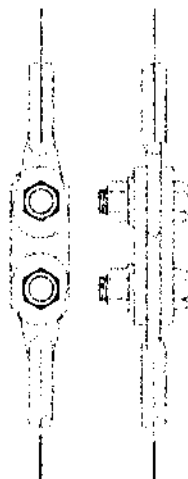


PIN

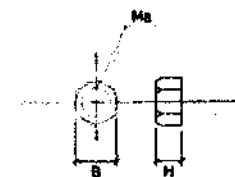
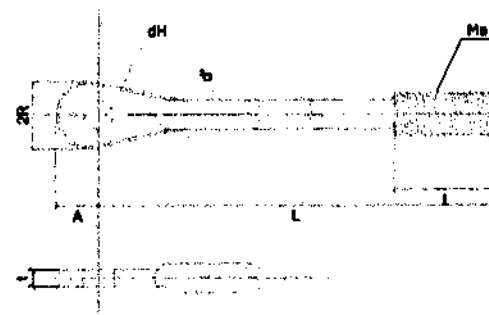


NUT

DETAIL OF RING JOINT



DETAIL OF TURNBUCKLE



NUT

DETAIL OF TIE ROD PROPER

## MATERIALS AND WEIGHT

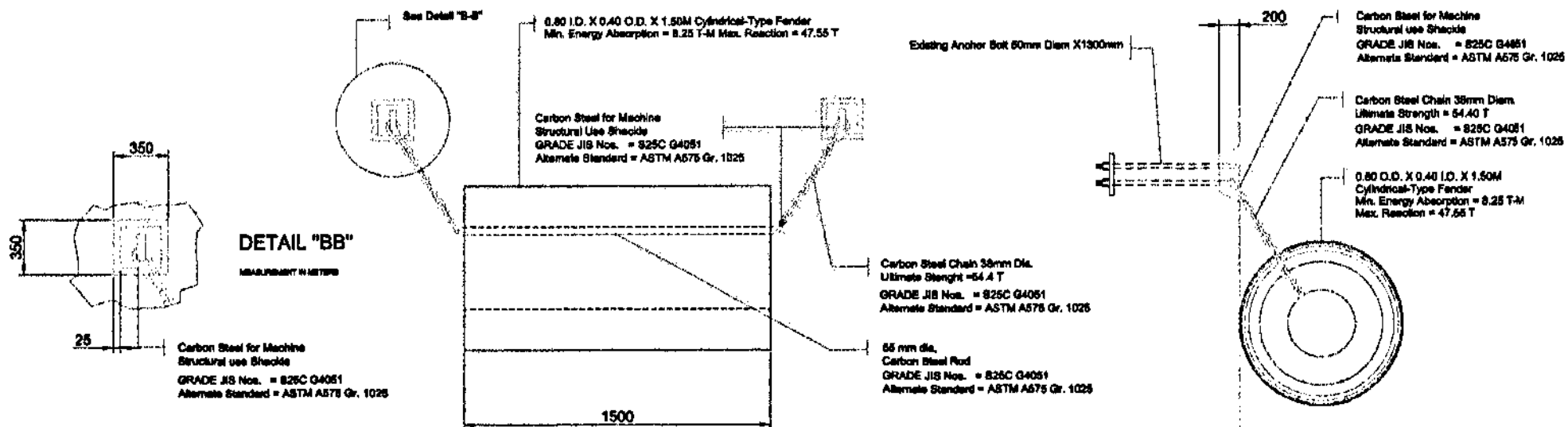
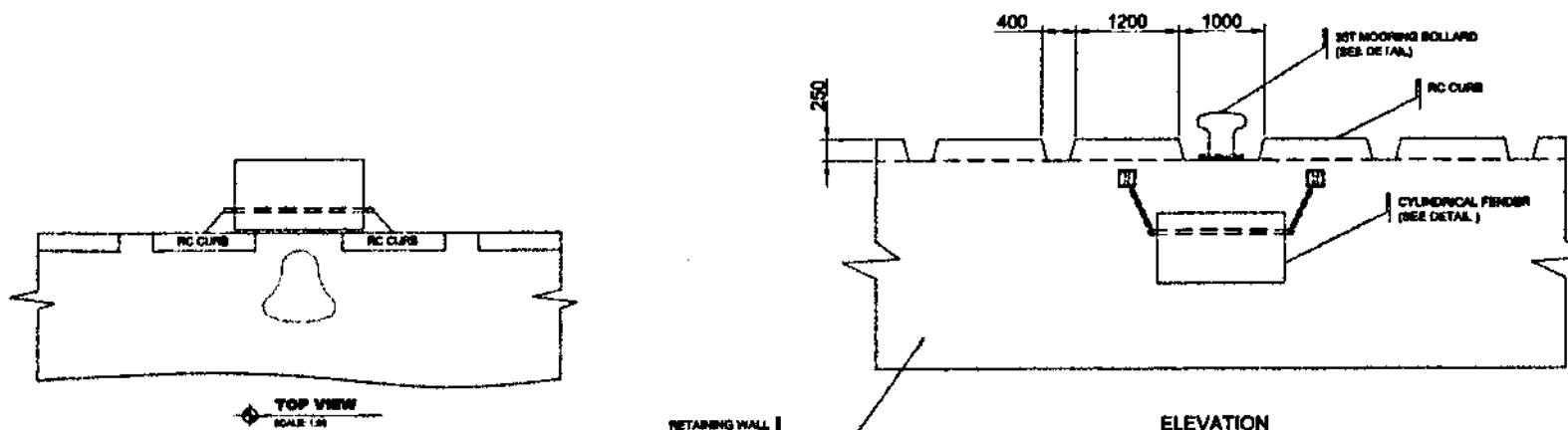
CLASSIFICATION	TURNBUCKLE								NUT				RING JOINT				PIN				PLATE				TIE ROD PROPER														
	D (mm)	L (mm)	F (mm)	M <sub>a</sub> (mm)	A (mm)	C (mm)	WEIGHT (kg)	ADJUSTABLE LENGTH (mm)	M <sub>a</sub>	H	B	WEIGHT (kg)	D	d	t	WEIGHT (kg)	d	M <sub>a</sub>	B	t	WEIGHT (kg)	2R	L	B	L	dH	WEIGHT (kg)	d	M <sub>a</sub> x P	2R	dH	L	A						
SIZE																																							
36B	90	340	20	45	60	46	8.8	140	45	46	70	1.00	36	28	55	0.41	66	39	6	0.105	36	128	75	36	55	15	1.2	92	22	160	272	38	3.7	36	170	92	38	27	56.5
60B	120	430	30	72	90	76	23.6	160	72	72	105	3.32	60	48	90	1.71	105	62	9	0.398	60	176	109	60	90	20	4.8	152	28	230	410	62	13.2	60	240	152	62	40	91

## DETAIL OF TIE ROD

SCALE:

NTS

	PROJECT TITLE:	SHEET CONTENT:	SUBMITTED BY:	ORDERED / REVIEWED BY:	APPROVED BY:	SHEET NO.
	RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE	AS SHOWN	BERNARD C. CALLEDO PORT MANAGER	REYNARD C. PARAFINA MANAGER, PWD	JAMES J. GANTALAO CHIEF, PORTMANAGEMENT OFFICE	6
	LOCATION: PORT OF MAJIN					9



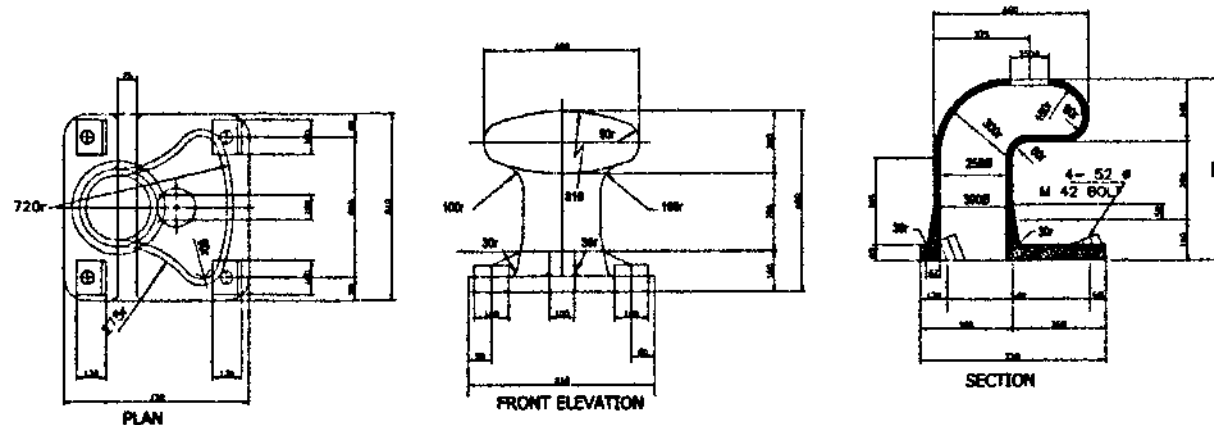
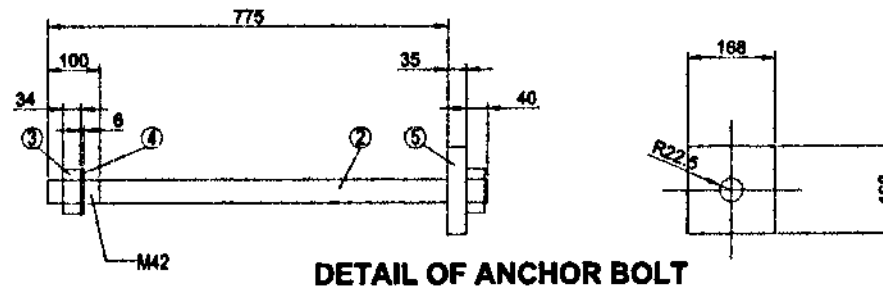
**DETAIL OF 0.4m X 0.80m X 1.50m CYLINDRICAL FENDER**

SCALE: 1:20



PROJECT TITLE:	SHEET CONTENT:	SUBMITTED BY:	CHECKED / REVIEWED BY:	APPROVED BY:	SHEET NO.
<b>RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE</b>	AS SHOWN	BERNARD C. CALLEDO PROJECT MANAGER	REYNARD C. PARAFINA MANAGER, PWCD	JAMES J. GANTALAO Asst. - project manager, PWCD	7 9
LOCATION: PORT OF MAABIN					

NO.	DESCRIPTION	MATERIALS AND SPECIFICATION	ALLOW. STRESS (Kg/cm <sup>2</sup> )	QTY.	WEIGHT PER Pc. (Kg)	WEIGHT (Kg)
1	BODY	JIS G 5101 3 GRADE SC48	JIS G 5101 3 GRADE SC48	1	420	420
2	ANCHOR BOLT	JIS G 3101 2 GRADE SS41 JIS B 0205 M 64-8	JIS G 3101 2 GRADE SS41 JIS B 0205 M 64-8	4	9	36
3	HEXAGON NUTS	JIS B 1181 GRADE 4T. M64-8	JIS B 1181 GRADE 4T. M64-8	8	-	-
4	PLAIN WASHER	JIS B 1256 ROUND STEEL	JIS B 1256 ROUND STEEL	4	-	-
5	ANCHOR RING	JIS G 3101 2 GRADE SS41 OR JIS G 5101 3 GRADE SC48	JIS G 3101 2 GRADE SS41 OR JIS G 5101 3 GRADE SC48	4	8	32



**SCALE:** **NTS**

REMOVAL AND  
RE-INSTALLATION OF  
(5 UNITS) MOORING  
BOLLARD

NOTE:  
REMOVAL AND TURN-OVER OF (11 UNITS) RDF AND  
MOORING BOLLARDS AT WHARF

F4, F7, F8, F9, F11, F12 - CYLINDRICAL FENDERS  
B1, B2, B3, B4, B5 - MOORING BOLLARDS

INSTALLATION OF (10 UNITS)  
NEW CYLINDRICAL FENDERS

REMOVAL AND  
RE-INSTALLATION OF (3 UNITS)  
IN GOOD CONDITION  
CYLINDRICAL FENDERS

# MOORING AND FENDER LOCATION PLAN

SCALE: 1:1200

PROJECT TITLE:

**RESTORATION OF DAMAGED PORT FACILITIES  
CAUSED BY TYPHOON ODETTE**

LOCATION: PORT OF MAABIN

INSET CONTENT:

AS SHOWN

SUBMITTED BY:

BERNARD C. CALLEDO  
P.E. / MANAGER

CHECKED / REVIEWED BY:

REYNARD C. PARAFINA  
MANAGER, PTO

APPROVED BY:

JAMES J. GANTALAO  
ADM. ENGINEERING OFFICER

SHEET NO.

9  
9

*SECTION VIII*

*BILL OF QUANTITIES*  
*and*  
*ATTACHMENTS*

**BID SUMMARY**  
**RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE**  
**PORT OF MAASIN, SOUTHERN LEYTE**



NO.	DESCRIPTION OF WORK	AMOUNT (Pesos)
BILL NO. 1	GENERAL EXPENSES	
BILL NO. 2	RETAINING WALL WITH ANCHOR TIE RODS	
BILL NO. 3	EARTHWORKS	
BILL NO. 4	BASE AND SUB BASE COURSE	
BILL NO. 5	PORTLAND CEMENT CONCRETE PAVEMENT, 280MM	
BILL NO. 6	CONCRETE FENCE WITH PLANTBOX	
BILL NO. 7	MOORING AND FENDERING SYSTEM	
<b>BID PRICE</b>		-

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

\_\_\_\_\_  
Date



**BILL OF QUANTITIES**  
**RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE**  
**PORT OF MAASIN, SOUTHERN LEYTE**



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (6)
<b>BILL NO. 1</b>	<b>GENERAL EXPENSES</b>				
1.01	Mobilization and Demobilization and Clean up of Site	lot	1.00		
1.02	Provide and Maintenance of Engineer's Site Office	months	14.00		
1.03	Provide Environmental Safety and Health Program	months	14.00		
<b>TOTAL FOR BILL NO. 1</b>					<b>-</b>

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

**BILL OF QUANTITIES**  
**RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE**  
**PORT OF MAASIN, SOUTHERN LEYTE**



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (6)
<b>BILL NO. 2</b>	<b>RETAINING WALL AWITH ANCHOR TIE RODS</b>				
2.01	Demolition and Disposal of Damaged Existing Structure	cu.m.	603.00		
2.02	Supply and Installation of Steel Reinforcements	kgs	23,896.00		
2.03	Supply, Installation and Removal of Formworks	sq.m.	1,018.00		
2.04	Supply, Place and Compaction of 4000 Psi concrete	cu.m.	282.00		
2.05	Supply and installation of Geotextile Filter Fabric	sq.m.	2,060.00		
2.06	Removal and Replacement of Anchor Tie Rods	units	40.00		
2.07	Supply and Installation of Rubble Stone	cu.m.	258.00		
<b>TOTAL FOR BILL NO. 2</b>					

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

**BILL OF QUANTITIES**  
**RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE**  
**PORT OF MAASIN, SOUTHERN LEYTE**



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (6)
BILL NO. 3	EARTHWORKS				
3.01	Excavation of Existing Granular Fill, Base Course and Sub Base Course	cu.m.	5,099.00		
3.02	Supply, Backfill and Compaction of Granular Fill	cu.m.	4,172.00		
<b>TOTAL FOR BILL NO. 3</b>					-

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

**BILL OF QUANTITIES**  
**RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE**  
**PORT OF MAASIN, SOUTHERN LEYTE**



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (6)
BILL NO. 4	BASE AND SUB BASE COURSE				
4.01	Supply, Backfilling, Spreading and compaction of Sub Base Course	cu.m.	618.00		
4.02	Supply, Backfilling, Spreading and Compaction of Base Course	cu.m.	309.00		
<b>TOTAL FOR BILL NO. 4</b>					-

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

**BILL OF QUANTITIES**  
**RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE**  
**PORT OF MAASIN, SOUTHERN LEYTE**



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (6)
<b>BILL NO. 5</b>	<b>PORTLAND CEMENT CONCRETE PAVEMENT, 280MM</b>				
5.01	Demolition and Disposal of Damaged Existing Structure	cu.m.	✓ 387.00		
5.02	Supply, Place and Compaction of 4000 Psi Portland Cement Concrete Pavement	sq.m	✓ 1,545.00		
<b>TOTAL FOR BILL NO. 5</b>					-

\_\_\_\_\_  
**Name of Bidder/Authorized Representative**  
**(Signatory's Legal Capacity)**

**BILL OF QUANTITIES**  
**RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE**  
**PORT OF MAASIN, SOUTHERN LEYTE**



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (6)
<b>BILL NO. 6</b>	<b>CONCRETE FENCE WITH PLANTBOX</b>				
6.01	Demolition and Disposal of Damaged Existing Structure	cu.m.	5.00		
6.02	Excavation and Backfilling Works	cu.m.	7.00		
6.03	Supply and Installation of Steel Reinforcements	kgs	1,645.00		
6.04	Supply, Installation and Removal of Formworks	sq.m.	156.00		
6.05	Supply, Place and Compaction of 3500 Psi Concrete	cu.m.	21.00		
6.06	Supply and Installation of CHB	sq.m.	45.00		
6.07	Supply and Application of Paints for Fence and Plant Box	sq.m.	204.00		
<b>TOTAL FOR BILL NO. 6</b>					-

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

**BILL OF QUANTITIES**  
**RESTORATION OF DAMAGED PORT FACILITIES CAUSED BY TYPHOON ODETTE**  
**PORT OF MAASIN, SOUTHERN LEYTE**



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (6)
<b>BILL NO. 7</b>	<b>MOORING AND FENDERING SYSTEM</b>				
7.01	Removal and Turn-over of Five (5) Units Cylindrical Rubber Dock Fenders and Six (6) Units Mooring Bollards at Wharf	units	11.00		
7.02	Supply, Place and Compaction of Gravel Bedding	cu.m	1.00		
7.03	Supply, and Installation of steel Reinforcements for Mooring Blocks	kgs	501.00		
7.04	Supply, Place and compaction of 3500 psi Concrete for Mooring Blocks	cu.m.	16.00		
7.05	Supply, Delivery and Installation of Ten (10) Units Cylindrical Rubber Dock Fenders	units	10.00		
7.06	Re-installation of Five (5) Units Mooring Bollards and Three (3) Units Cylindrical Rubber Dock Fenders	units	8.00		
<b>TOTAL FOR BILL NO. 7</b>					<b>-</b>

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

## **BASIS OF PAYMENT FOR WORK ITEMS INCLUDED IN THE PROPOSAL**

The work items included in the proposal and the basis of payments are as follows:

### **BILL NO. 1**

#### **GENERAL EXPENSES**

**Item 1.01 Mobilization and Demobilization and Clean up of Site**

The quantity to be paid for shall be the minimum equipment requirement enumerated in the bid documents mobilized, demobilized and cleaning of the site and accepted by the Engineer. The contract lump sum price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to mobilize and demobilize all the minimum equipment requirement enumerated in the bid documents including cleaning of the site. Fifty percent (50%) of the total amount shall be payable after the mobilization activity while the remaining (50%) payable after demobilization and cleaning.

**Item 1.02 Provide Maintenance of Engineer's site office**

The quantity to be paid for shall be the Facilities to be provided by the Contractor to the Engineer Staff.

**Item 1.03 Provide Environmental Safety Health Program**

The quantity to be paid for shall be the actual implementation of construction safety and health program and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the implementation of the Construction Safety and Health Program, as required and approved by the Department of Labor and Employment (DOLE).

### **BILL NO. 2**

#### **RETAINING WALL WITH ANCHOR TIE RODS**

**Item 2.01 Demolition and Disposal of Damaged Existing Structure**

Demolition/breaking and Disposal of Damaged Existing Structures to be paid for shall be measured by cubic meters of the structures in its original position for material actually demolished and disposed. The quantities determined will be paid for at the contract unit prices for the pay items as shown in the Bill of Quantities which prices and payment shall be the full compensation for the demolition and disposal of all materials inclusive of all labor, equipment, tools and incidentals necessary to complete the items and as certified by the Engineer.

**Item 2.02 Supply and Installation of Steel Reinforcements**

The quantity of reinforcing steel bars to be paid for shall be measured (as in 3.2.21.1.3) by the weight of reinforcing steel bars supplied and installed completely and certified by the Engineer for payment. The cost shall constitute full compensation



for furnishing materials, labor, equipment, tools, and incidentals necessary to complete reinforcing steel works as indicated in the Bill of Quantities.

**Item 2.03      Supply, Installation and Removal of Formworks**

The quantity to be paid for shall be the actual area in square meter of the structure to be enclosed by formworks, with complete bracings, scaffoldings and false works, true to its elevation, designed, constructed and maintained including complete removal in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 2.04      Supply, Place and Compaction of 4000 psi concrete**

The quantities measured as provided above, shall be paid for at the contract unit price according to the class of concrete for the pay item shown in the Bill of Quantities. The unit price shall be considered to include expansion joints, vapor barrier and sealant, form oil coating, synthetic fibrous reinforcement/admixtures where required, necessary accesses for pipes, conduits, sewer drains and the like and work required for placing concrete in the final position including material, batching, mixing, transporting, handling, placing, compacting, curing, protection and finishing of concrete surfaces.

**Item 2.05      Supply and Installation of Geotextile Filter Fabric**

Filter fabrics to be paid for shall be measured by the actual surface area in square meters of geotextile filter fabric supplied, set in place and finished in accordance with the Specifications and accepted by the Engineer. All work performed and measured as provided shall be paid for at the contract unit price per square meter for filter fabric, which price shall include furnishing of labor, equipment, tools, materials, supplies and incidentals necessary to complete work.

**Item 2.06      Removal and Replacement of Anchor Tie Rods**

The quantity to be paid for shall be the actual number of sets of tie rods completely removed and replaced / installed set in place in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 2.07      Supply and Installation of Rubble Stone**

Quantities of core rock, rubble, secondary rock, armour rock and rock fragments to be paid for shall each be measured in cubic meters. The volumes to be paid for shall be measured by taking cross-sections of the sea bed on the site of work at 10 meter intervals or closer, if necessary, immediately before placing the rock. The volumes of the different classes of rock shall then be computed based on the neat lines and elevations shown on the drawings and on the foregoing data, with probable settlement as shown in the drawings. The quantities measured as provided above shall be paid for at the contract unit price, and shown in the Bid of Quantities.

**BILL NO. 3**

**EARTHWORKS**

**Item 3.01      Excavation of existing Granular Fill, Base Course and Sub Base Course**

Quantities of structure excavation to be paid for shall be the number of cubic meters of unclassified excavation removed and disposed at locations specified or directed. Prior to excavation, drawings, showing paylines for excavation shall first be submitted to the Engineer for approval. Measurement shall be made by cross sectioning ground surface prior to excavation work, and later estimating the volume of materials excavated by computation. No additional payment shall be made for excavating beyond the approved payline. Unit Price is inclusive of all labor, equipment, tools and incidentals necessary to complete the items and as certified by the Engineer.

**Item 3.02      Supply, Backfill and Compaction of Granular Fill**

The quantities determined will be paid for at the contract unit prices for the pay items as shown in the Bill of Quantities which prices and payment shall be the full compensation for the Backfill and Compaction of in place materials inclusive of all labor, equipment, tools and incidentals necessary to complete the items and as certified by the Engineer.

**BILL NO. 4**

**BASE AND SUB BASE COURSE**

**Item 4.01      Supply, Backfilling, Spreading and Compaction of Sub Base course**

Aggregate subbase course shall be measured by the cubic meter (m<sup>3</sup>). The quantity to be paid for shall be the design volume compacted in place as shown on the Drawings, and accepted in the completed course. No allowance will be given for materials placed outside the design limits shown on the cross sections. Trial sections shall not be measured separately but shall be included in the quantity of subbase herein measured. The accepted quantities measured shall be paid for at the contract unit price for aggregate subbase course which price and payment shall be full compensation for furnishings and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Section.

**Item 4.02      Supply, Backfilling, Spreading and Compaction of Base course**

Aggregate base course will be measured by the cubic meter (m<sup>3</sup>). The quantity to be paid for shall be the design volume compacted in-place as shown on the drawings, and accepted in the completed course. No allowable shall be given for materials placed outside the design limits shown on the cross sections. Trial sections shall not be measured separately but shall be included in the quantity of aggregate base course. The accepted quantities, measured shall be paid for at the contract unit price for aggregate base course which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Section.

**BILL NO. 5**

**PORTLAND CEMENT CONCRETE PAVEMENT, 280 MM**

**Item 5.01      Demolition and disposal of Damaged Existing Structure**

Demolition/breaking and Disposal of Damaged Existing Structures to be paid for shall be measured by cubic meters of the structures in its original position for material actually demolished and disposed. The quantities determined will be paid for at the

contract unit prices for the pay items as shown in the Bill of Quantities which prices and payment shall be the full compensation for the demolition and disposal of all materials inclusive of all labor, equipment, tools and incidentals necessary to complete the items and as certified by the Engineer.

**Item 5.02      Supply, Place and Compaction of 4000 PSI Portland Cement Concrete Pavement**

The quantities of Portland cement concrete pavement to be paid for shall be measured by the area of the top surface, in square meters, calculated from its width and length of the designated thickness as shown on the drawings. The above quantities shall be paid for based on the quantities measured as provided above at the appropriate contract unit price for each of the particular pay items shown in the Bill of Quantities which price and payments shall be full compensation for all the costs of furnishing, placing, compacting and shaping material including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this section.

**BILL NO. 6**

**CONCRETE FENCE WITH PLANT BOX**

**Item 6.01      Demolition and Disposal of Damaged Existing Structure**

Demolition/breaking and Disposal of Damaged Existing Structures to be paid for shall be measured by cubic meters of the structures in its original position for material actually demolished and disposed. The quantities determined will be paid for at the contract unit prices for the pay items as shown in the Bill of Quantities which prices and payment shall be the full compensation for the demolition and disposal of all materials inclusive of all labor, equipment, tools and incidentals necessary to complete the items and as certified by the Engineer.

**Item 6.02      Excavation and Backfilling Works**

The accepted quantities, measured shall be paid for at the contract unit price for excavation, backfilling, spreading and compaction of granular backfill which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete work prescribed in this section and accepted by the Engineer for payment.

**Item 6.03      Supply and Installation of Steel Reinforcements**

The quantity of reinforcing steel bars to be paid for shall be measured (as in 3.2.21.1.3) by the weight of reinforcing steel bars supplied and installed completely and certified by the Engineer for payment. The cost shall constitute full compensation for furnishing materials, labor, equipment, tools, and incidentals necessary to complete reinforcing steel works as indicated in the Bill of Quantities.

**Item 6.04      Supply, Installation and Removal of Formworks**

The quantity to be paid for shall be the actual area in square meter of the structure to be enclosed by formworks, with complete bracings, scaffoldings and false works, true to its elevation, designed, constructed and maintained including complete removal in

accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 6.05      Supply, Place and Compaction of 3500 psi concrete**

The quantities measured as provided above, shall be paid for at the contract unit price according to the class of concrete for the pay item shown in the Bill of Quantities. The unit price shall be considered to include expansion joints, vapor barrier and sealant, form oil coating, synthetic fibrous reinforcement/admixtures where required, necessary accesses for pipes, conduits, sewer drains and the like and work required for placing concrete in the final position including material, batching, mixing, transporting, handling, placing, compacting, curing, protection and finishing of concrete surfaces.

**Item 6.06      Supply and Installation of CHB**

Quantities of unit masonry to be paid for shall be units or number of square meters of various thicknesses, types, kinds and/or sizes of respective items of work required as shown or specified and as installed and accepted in completed work. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 6.07      Supply and Application of Paints for Fence and Plant Box**

Payment for painting shall be by the square meter at the contract unit price for the pay items as shown in the Bill of Quantities which includes all other related works as prescribed in this Section. The quantity to be paid for shall be the actual area in square meter of painted fence and plant box in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**BILL NO. 7**

**MOORING AND FENDERING SYSTEM**

**Item 7.01      Removal and Turn-over of Five (5) Units Cylindrical Rubber Dock Fenders and Six (6) Units Mooring Bollards at Wharf**

The quantity to be paid for shall be the actual number of pieces of removed and turn over RDF and Bollards to the Engineer in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 7.02      Supply, Place and Compaction of Gravel Bedding**

The accepted quantities, measured shall be paid for at the contract unit price for Supply, Place and Compaction of Gravel bedding which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Section.

**Item 7.03      Supply, and Installation of Steel Reinforcements for Mooring Blocks**

The quantity of reinforcing steel bars to be paid for shall be measured (as in 3.2.21.1.3) by the weight of reinforcing steel bars supplied and installed completely and certified by the Engineer for payment. The cost shall constitute full compensation for furnishing materials, labor, equipment, tools, and incidentals necessary to complete reinforcing steel works as indicated in the Bill of Quantities.

**Item 7.04      Supply, Place and Compaction of 3500psi Concrete for Mooring Blocks**

The quantities measured as provided above, shall be paid for at the contract unit price according to the class of concrete for the pay item shown in the Bill of Quantities. The unit price shall be considered to include all formwork including scaffolding, forms for construction and expansion joints, vapor barrier and sealant, form oil coating, synthetic fibrous reinforcement/admixtures where required, necessary accesses for pipes, conduits, sewer drains and the like and work required for placing concrete in the final position including material, batching, mixing, transporting, handling, placing, compacting, curing, protection and finishing of concrete surfaces.

**Item 7.05      Supply, Delivery and Installation of Ten (10) Units Cylindrical Rubber Dock  
Fenders**

The quantity to be paid for shall be the actual number of Cylindrical Fenders installed and completed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 7.06      Re-installation of Five (5) Units Mooring Bollards and Three (3) Units Rubber  
Dock              Fenders**

The quantity to be paid for shall be the actual number of Mooring Bollard and Rubber Dock Fenders re-installed and completed in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**MINIMUM MAJOR EQUIPMENT REQUIREMENTS**

1	unit/s	Air Compressor (250 cfm, minimum), owned
1	unit/s	Backhoe, breaker attachment, owned/ leased
1	unit/s	Backhoe, 0.5 cu.m. cap., owned/leased
2	unit/s	Bar Cutter (electric, 25mm dia min.), owned/ leased
1	unit/s	Boom Truck, 2T to 5T cap., owned/ leased
1	unit/s	Concrete Cutter, owned
1	unit/s	Concrete Screeder, owned
2	unit/s	Concrete Vibrator (3.5 hp, minimum), owned
1	unit/s	Dumptruck, 10 cu.m., owned/ leased
2	unit/s	Jackhammer w/ compressor, owned/ leased
1	unit/s	One Bagger Concrete Mixer, owned
1	unit/s	Oxy-Acetylene Cutting Outfit incl. tanks, owned
1	unit/s	Road Grader (125 hp, minimum), owned/ leased
1	unit/s	Transit mixer, 5 cu.m cap, owned/ leased
1	unit/s	Tugboat, owned/ leased
1	unit/s	Road Roller (12.05T,vibratory, minimum) owned/ leased
1	unit/s	Water Truck with pump (1,000 gal., minimum), owned
1	unit/s	Plate Compactor, owned.
1	Unit/s	Welding Machine, 400A, owned
1	Unit/s	Bar Bender (electric, 25mm dia min.), owned/ leased

## **CONSTRUCTION SAFETY AND HEALTH REQUIREMENT**

The Contractor shall implement the construction safety and health program in accordance with the applicable provisions of the Occupational Safety and Health Standards (OSHS) of the Department of Labor and Employment (DOLE).

The Contractor, subject to the approval of the Engineer shall provide and maintain throughout the duration of the contract a medical room with at least 15 square meters together with all necessary supplies to be sited in the Contractor's main area.

The Contractor shall provide the following minimum requirements:

### **LABOR**

1	no.	Safety Engineer / Officer
1	no.	Nurse / Health Officer

### **EQUIPMENT / MATERIALS**

#### **Personnel Protective Equipment**

20	pcs.	Hard Hats
20	pairs	Gloves (rubberized)
20	pcs.	Safety Glasses/Goggles (clear)
20	pcs.	Long sleeve T-shirt
8	pc.	Aprons
8	pc.	Safety Belts
20	pairs	Safety Shoes
4	sets	Life Lines

#### **Safety Devices**

1	lot	Barricades
1	lot	Warning signs
2	unit/s	Fire extinguisher (10kg)

Medical and First Aid System	-	Fourteen (14) mos.
Temporary shelter for workers	-	1 lot

### **NOTE:**

The Contractor shall provide the above-cited minimum construction safety and health requirements or as required by the Engineer.

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**REVISED SCHEDULE OF MINIMUM TEST REQUIREMENTS OF  
CONSTRUCTION MATERIALS FOR PPA INFRASTRUCTURE PROJECTS**

<i>Materials/Items of Work</i>	<i>Required Tests</i>	<i>Minimum Incremental Frequency of Tests</i>
<b>I. Construction of Pier/Wharf, Platform and Ramp</b>		
<b>Structural Concrete (SC)</b>		
A Portland Cement	Quality Test	For every 2,000 bags (40kg) or fraction thereof
B Fine Aggregate	Quality Test for Grading, Elutriation (wash), Bulk Specific Gravity, Absorption, Mortar Strength, Soundness, Organic Impurities, Unit Weight, % Clay Lumps and Shale	For every 1,500 cubic meter or fraction thereof
C Coarse Aggregate	Quality Test for Grading, Bulk Specific Gravity, Absorption and Abrasion	For every 1,500 cubic meter or fraction thereof
D Water	Certificate from the Engineer or Quality Test for Density and Chloride Content	One per source
E Steel Bars	Mill Certificate and Quality Test for Chemical Composition and Mechanical Properties	For every 10,000 kg or fraction thereof
F Concrete	Compressive Strength on cylinder samples	1 set consisting of 3 concrete cylinder samples shall be taken from each day's pouring and to represent not more than 75 cu m of concrete or fraction thereof
	Slump Test	For every mix
G Admixture and Concrete Curing Materials	Quality Test	One per shipment
<b>Piling (P)</b>		
A Concrete Piles	Fabrication Report	One per fabrication
1 Concrete	Same test as for SC (F)	Same frequency as SC (F)
2 Steel Bars	Same test as for SC (E)	Same frequency as SC (E)
3 High Tension Strand	Test for Chemical Composition and Mechanical Properties	For every 20000kg or fraction thereof



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Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
4 Coarse Aggregates	Same Test as for SC (C)	Same frequency as SC (C)
5 Fine Aggregates	Same Test as for SC (B)	Same frequency as SC (B)
6 Steel Pipe Piles	Fabrication Report, Mill Certificate and Quality Test for Chemical and Mechanical properties	One per fabrication
1 Steel	Chemical Composition (refer below) <ul style="list-style-type: none"> <li>Under 14" (355.6mm) Outside Diameter</li> <li>14" to 36" (355.6 to 914mm) Outside Dia</li> <li>Over 36" (914mm) Outside Diameter</li> </ul> Mechanical/Tensile	2 from 200 pipe or fraction thereof 2 from 100 pipe or fraction thereof 2 from 3000ft (914m) or fraction thereof One (1) tension test shall be made on one length or fraction thereof of each size, or one piece of skelp representing each lot of 200 lengths or fraction thereof of each size
2 Polyurethane Coating	Mill Certificate and Quality Test	One per fabrication
3 Concrete	Same test as for SC (F)	Same frequency as SC (F)
4 Fine Aggregate	Same test as for SC (B)	Same frequency as SC (B)
5 Coarse Aggregate	Same test as for SC (C)	Same frequency as SC (C)
6 Steel Bars	Same Test as SC (E)	Same frequency as SC (E)
7 Water	Same Test as SC (D)	Same frequency as SC (D)
Rubber Dock Fenders (RDF)	Physical Test Performance Test for Energy Absorption and Reaction Force	All units All units
Accessories Washer and Fixing Bolt, Anchor Bolt	Physical Test Quality Test for Chemical Composition and Mechanical Properties	All units One per fabrication

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<b>Materials/Items of Work</b>	<b>Required Tests</b>	<b>Minimum Incremental Frequency of Tests</b>
Mooring Bollard (MB) and Accessories (Hexagon Nuts, Plain Washer, Anchor Ring and Anchor Bolt)	Physical Test  Quality Test for Chemical Composition and Mechanical Properties	All Units  One per fabrication
<b>II. Construction of Back-Up Area, Causeway and Pavement</b>  Sheet Piling (SP)		
A Concrete Sheet Piles		
1 Concrete	Same test as for SC (F)	Same frequency as SC (F)
2 Steel Bars	Same test as for SC (E)	Same frequency as SC (E)
3 High Tension Strands	Same test as for P (A 3)	Same frequency as P (A 3)
4 Fine Aggregates	Same test as for SC (B)	Same frequency as SC (B)
5 Coarse Aggregates	Same Test as for SC (C)	Same frequency as SC (C)
B Steel Pipe Piles		
1 Steel	Same test as for P (B1)	Same frequency as P (B1)
2 Concrete	Same test as for SC (F)	Same frequency as SC (F)
3 Fine Aggregate	Same test as for SC (B)	Same frequency as SC (B)
4 Steel Bars	Same test as for SC (E)	Same frequency as SC (E)

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<i>Materials/Items of Work</i>	<i>Required Tests</i>	<i>Minimum Incremental Frequency of Tests</i>
Rocks	Test for Apparent Specific Gravity and Abrasion	For every 1,500 cubic meter or fraction thereof
Geotextile Filter	Physical and Mechanical Test Mill Certificate	One per batch One per batch
Sand and Gravel Fill	Quality Test for Organic Impurities and Grading	For every 1,500 cubic meter or fraction thereof
Selected Fill	Quality Test for Grading, Plasticity and Laboratory Compaction Test  Laboratory California Bearing Ratio (CBR)  Field Density Test	For every 1,500 cubic meter or fraction thereof  For every 2,500 cubic meter or fraction thereof  For every layer of 150mm of compacted depth at least one group of three in-situ density test for every 500 sq m or fraction thereof
Aggregate Base Course	Quality Test for Grading and Plasticity  Quality Test for Grading, Plasticity, Abrasion and Laboratory Compaction Test  Laboratory California Bearing Ratio (CBR) Field Density Test	For every 300 cubic meter or fraction thereof  For every 1,500 cubic meter or fraction thereof  Same frequency as Selected Fill Same frequency as Selected Fill
Portland Cement Concrete Pavement (PCCP)		
A Portland Cement	Same test as for SC (A)	Same frequency as SC (A)
B Fine Aggregate	Same test as for SC (B)	Same frequency as SC (B)
C Coarse Aggregate	Same test as for SC (C)	Same frequency as SC (C)
D Water	Same test as for SC (D)	Same frequency as SC (D)
E Steel Bars (Dowels)	Same test as for SC (E)	Same frequency as SC (E)
F Joint Filler	Quality Test	One (1) per shipment

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<b>Materials/Items of Work</b>	<b>Required Tests</b>	<b>Minimum Incremental Frequency of Tests</b>
G Admixture and Concrete Curing Material	Same test as for SC (G)	Same frequency as SC (G)
H Concrete	Same test as for SC (F) Flexural Test	Same frequency as SC (F) 3 beam samples for every 330 sq m or fraction thereof
I Completed Pavement	Core Test	1 set (3 specimen) for every 2,500 sq m and fraction thereof
Interlocking Concrete Blocks		
A Cement	Same test as for SC (A)	Same frequency as SC (A)
B Fine Aggregate	Same test as for SC (B)	Same frequency as SC (B)
C Coarse Aggregate	Same test as for SC (C)	Same frequency as SC (C)
D Water	Same test as for SC (D)	Same frequency as SC (D)
E Admixture & Concrete Curing Materials	Same test as for SC (G)	Same frequency as SC (G)
F Completed Blocks	Physical Test and Compressive Strength	6 blocks per day of fabrication
Cement Treated Base Course (CTB)		
A Portland Cement	Same test as for SC (A)	Same frequency as SC (A)
B Fine & Coarse Aggregates	Quality Test for Grading, Abrasion and Soundness	For every 1,500 cubic meter or fraction thereof
C Water	Same test as for SC (D)	Same frequency as SC (D)
D Completed CTB	Field Density Test	For every layer of 150mm of compacted depth at least one group of three in-situ density test every 500 sq m or fraction thereof
Retaining Wall/Coping Wall/RC Curb/RC Ditch/Shear Key/Concrete Blocks/Lean Concrete		
A Portland Cement	Same test as for SC (A)	Same frequency as SC (A)
B Fine Aggregate	Same test as for SC (B)	Same frequency as SC (B)

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<b>Materials/Items of Work</b>	<b>Required Tests</b>	<b>Minimum Incremental Frequency of Tests</b>
C Coarse Aggregates	Same test as for SC (C)	Same frequency as SC (C)
D Water	Same test as for SC (D)	Same frequency as SC (D)
E Steel Bars	Same test as for SC (E)	Same frequency as SC (E)
F Admixture and Concrete Curing	Same test as for SC (G)	Same frequency as SC (G)
G Concrete	Same test as for SC (F)	Same frequency as SC (F)
Tie Rod		
A Steel	Same test as for SC (E)	One per batch
B Assembly	Performance Test (Tension)	One per batch
Tie Bars and Dowels	Same test as for SC (E)	For every 10,000 kg or fraction thereof per Tie bars and Dowels
Pipe Culverts and Storm Drains		
A Pipes	Test for Strength, Absorption and Physical	For every 50 pieces
B Mortar or Joint	Same Test as for SC (A,B and D) Alternative Test Same test as for SC (F) and Inspection Report	For every 25 pieces
Concrete Hollow Blocks		
A Portland Cement	Same test as for SC (A)	Same frequency as SC (A)
B Fine Aggregates	Same test as for SC (B)	Same frequency as SC (B)
C Water	Same test as for SC (D)	Same frequency as SC (C)
D Concrete	Same test as for SC (F)	Same frequency as SC (F)
E Completed CHB	Quality Test	One for every 500 pieces or fraction thereof
Construction Joints (CJ)		
A Angle Bars	Test for Physical and Mechanical Properties	One per batch
B Steel Bars	Same test as for SC (E)	One per batch
C Zinc (Hot Dip Galvanizing) Coatings	Physical Test for Appearance, Stripping, Weighing, Adherence and Adhesion  Coating Thickness Magnetic Thickness Measurement	All units  1 set (3 specimen) for every 100,000 sq mm or fraction thereof

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<b>Materials/Items of Work</b>	<b>Required Tests</b>	<b>Minimum Incremental Frequency of Tests</b>
<b>Sacked Concrete</b>		
A Cement	Same test as for SC (A)	Same frequency as SC (A)
B Fine Aggregates	Same test as for SC (B)	Same frequency as SC (B)
C Coarse Aggregates	Same test as for SC (C)	Same frequency as SC (C)
D Water	Same test as for SC (D)	Same frequency as SC (D)
E Concrete	Same test as for SC (F)	Same frequency as SC (F)
F Sack (jute)	Physical Test	One for every 50 pieces
<b>Rubble Concrete</b>		
A Cement	Same test as for SC (A)	Same frequency as SC (A)
B Fine Aggregates	Same test as for SC (B)	Same frequency as SC (B)
C Coarse Aggregates	Same test as for SC (C)	Same frequency as SC (C)
D Water	Same test as for SC (D)	Same frequency as SC (D)
E Concrete	Same test as for SC (F)	Same frequency as SC (F)
F Rocks	Same test as for ROCKS	Same frequency as ROCKS
<b>Earthworks</b>		
A Sub-grade preparation	Grading Test Plasticity Test (LL, PL, PI) Laboratory Compaction Test  Density Test	For every 1,500 cubic meter or fraction thereof   For every layer of 150mm of compacted depth at least one group of three in-situ density test every 500 sq m or fraction thereof
B Structure Excavation	If excavated materials shall be used as Backfill Grading Test Plasticity Test (LL, PL, PI) Laboratory Compaction Test  Density Test	For every 1,500 cubic meter or fraction thereof   For every layer of 150mm of compacted depth at least one group of three in-situ density test every 500 sq m or fraction thereof

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Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
<b>III Port Operations Building/Passenger Terminal Building/Transit Shed/Warehouse</b>		
<b>STRUCTURAL WORKS</b>		
Refer to Structural Concrete (SC) and Piling Works (P)		
<b>ARCHITECTURAL WORKS</b>		
Ceramic – Filled Liquid Membrane / Water Proofing, Hydrophobic Poreblocking Ingredients with Superplasticizer	Physical Property, Mechanical and Chemical Property, Leak Test / Flood Test	One per shipment
Paint	Quality Test	One 4-L can for every 100 cans or fraction thereof
Ceramic Tile	Inspection and Evaluation Report from the Engineer	One per shipment
Stainless Steel	Inspection and Evaluation Report from the Engineer	One per shipment
Roofing Materials	Inspection and Evaluation Report from the Engineer	One per shipment
Ceiling Materials	Inspection and Evaluation Report from the Engineer	One per shipment
<b>ELECTRICAL AND MECHANICAL WORKS</b>		
Wires / Cables	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per shipment
Electrical Devices	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per shipment
Fire Alarm System	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item
Wiring Devices	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per shipment

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Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
Protective Devices	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per shipment
Telephone System	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item
CCTV System	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item
CATV System	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item
Background Music and Paging System	Inspection and Evaluation Report from the Engineer, Testing and Commissioning	One per item
Air Conditioning Units & Ventilation	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item
Conduit Pipes	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item
Lighting Fixtures	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item
<b>PLUMBING WORKS</b>		
Pipes	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item



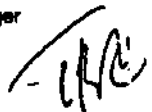
PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2016  
Attachment  
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Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
Fixtures	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item
Pipe Culverts	Compression Strength  Inspection and Evaluation Report from the Engineer	For every size not more than 25 pipes cast in the field
<b>IV Miscellaneous Materials</b> <b>Fencing</b> A Barbed Wire, Cyclone Wire Mesh, Chain Link B Concrete Post	Physical Test (Dimensions and Coatings)  Refer to Superstructure (SC)	One per Batch  Refer to Superstructure (SC)
<b>Lamp Post</b> A Structural Steel B Zinc (Hot Dip Galvanizing) Coatings	Physical Test (Dimensions) Same test as for SC (E)  Same test as for CJ (C)	All units  One per batch
Drainage Steel Grating	Same test as for SC (E)  Inspection Report	One (1) batch
Metal Pipe (Cast Iron Galvanized, etc.)	Physical Test (Dimensions and Coatings)	1 per delivery
Welding Works	Destructive and Non Destructive Test	One (1) per lot

- NOTES**
1. Testing of RDF shall be performed only by an independent Testing Laboratory duly accredited by BRS, DOST and PPA
  2. Testing of other materials shall be performed only by an independent Testing Laboratory duly accredited by BRS and PPA.
  3. All other issuances which are otherwise inconsistent herewith are hereby revoked or otherwise amended.

Approved

  
**RAUL T. SANTOS**  
Officer-In-Charge,  
Office of the General Manager



## ***SECTION IX***

# ***CHECKLIST OF TECHNICAL AND FINANCIAL DOCUMENTS***

# Checklist of Technical and Financial Documents

## I. TECHNICAL COMPONENT ENVELOPE

### *Class "A" Documents*

#### Legal Documents

- ☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages)

#### Technical Documents

- ☐ (b) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**
- ☐ (c) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules; **and**
- ☐ (d) Special PCAB License in case of Joint Ventures; **and** registration for the type and cost of the contract to be bid; **and**
- ☐ (e) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;  
**or**  
Original copy of Notarized Bid Securing Declaration; **and**
- ☐ (f) Project Requirements, which shall include the following:
  - ☐ a. Organizational chart for the contract to be bid;
  - ☐ b. List of contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;
  - ☐ c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; **and**
- ☐ (g) Original duly signed Omnibus Sworn Statement (OSS); **and** if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

**Financial Documents**

- ☐ (h) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

***Class "B" Documents***

- ☐ (i) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence;  
or  
duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

**II. FINANCIAL COMPONENT ENVELOPE**

- ☐ (j) Original of duly signed and accomplished Financial Bid Form; and

***Other documentary requirements under RA No. 9184***

- ☐ (k) Original of duly signed Bid Prices in the Bill of Quantities; and
- ☐ (l) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; and
- ☐ (m) Cash Flow by Quarter.

***SECTION X***  
***BIDDING FORM***

## Bid Form for the Procurement of Infrastructure Projects

*[shall be submitted with the Bid]*

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### BID FORM

Date : \_\_\_\_\_  
Project Identification No. : \_\_\_\_\_

**To: Philippine Ports Authority**  
PPA Building, Bonifacio Drive,  
South Harbor, Port Area, Manila

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers \_\_\_\_\_, the receipt of which is hereby duly acknowledged, we, the undersigned, declare that:

- a. We have no reservation to the PBDs, including the Supplemental or Bid Bulletins, for the Procurement Project: **Restoration of Damaged Port Facilities Caused by Typhoon Odette, Port of Maasin, Southern Leyte,;**
- b. We offer to execute the Works for this Contract in accordance with the PBDs;
- c. The total price of our Bid in words and figures, excluding any discounts offered below is: \_\_\_\_\_;
- d. The discounts offered and the methodology for their application are: \_\_\_\_\_;
- e. The total bid price includes the cost of all taxes, such as, but not limited to: *[specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties]*, which are itemized herein and reflected in the detailed estimates,
- f. Our Bid shall be valid within the period stated in the PBDs, and it shall remain binding upon us at any time before the expiration of that period;
- g. If our Bid is accepted, we commit to obtain a Performance Security in the amount of \_\_\_\_\_ percent of the Contract Price for the due performance of the Contract, or a Performance Securing Declaration in lieu of the the allowable forms of Performance Security, subject to the terms and conditions of issued GPPB guidelines<sup>1</sup> for this purpose;
- h. We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;
- i. We understand that this Bid, together with your written acceptance thereof

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<sup>1</sup> currently based on GPPB Resolution No. 09-2020

included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and

- j. We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.
- k. We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the **Restoration of Damaged Port Facilities Caused by Typhoon Odette, Port of Maasin, Southern, Leyte, of the Philippine Ports Authority.**
- l. We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: \_\_\_\_\_

Legal Capacity: \_\_\_\_\_

Signature: \_\_\_\_\_

Duly authorized to sign the Bid for and behalf of: \_\_\_\_\_

Date: \_\_\_\_\_

**STATEMENT OF THE BIDDER'S ALL ONGOING GOVERNMENT AND PRIVATE CONTRACTS, INCLUDING CONTRACTS AWARDED BUT NOT YET STARTED**

I hereby declare that all ongoing contracts, including awarded contracts yet to be started coinciding with the contract to be bid are listed below:

Name of outstanding Contracts  1]	Owner's Name and Address	Scope of Work  2]	Contractor's Role and Percentage of Participation 3]	Total Contract Amount or Value  4]	Date of Contract and NOA 5]	Value of Outstanding Works 6]	Accomplishment (in percentage, %) 7]		Contract Duration 8]	
							Planned	Actual	Start of Project	Estimated Completion Date
A) Government Contracts  i. On-going ii. Awarded but not yet started  B) Private Contracts  i. On-going ii. Awarded but not yet started										

**NOTE:**

- 1] As appearing in the contract executed by the parties.
- 2] With special reference to the Scope of Works of the Project as described/enumerated in the Contract.
- 3] Indicate the percentage of participation and whether as Sole Contractor, Sub-Contractor or Member in a Joint Venture / Consortium.
- 4] Indicate the FOREX used if Contract Value is expressed in a currency other than the Philippine Peso.
- 5] As appearing in the Contract and Notice of Award (NOA).
- 6] Amount or value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started coinciding with the contract to be bid.
- 7] Percentage of Accomplishment as of the preceding month which should not be earlier than two (2) months from the date of bid submission.
- 8] As appearing in the Notice to Proceed and Contract.

This Statement shall be supported by:

- a) Notice of Award
- b) Notice to Proceed and Contract

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

\_\_\_\_\_  
Date

Revised: September 2021



**STATEMENT OF THE BIDDER'S SINGLE LARGEST COMPLETED CONTRACT (SLCC) SIMILAR TO THE CONTRACT TO BE BID**

Name of the completed Contract 1]	Owner's Name and Address	Scope of Work 2]	Contractor's Role and Percentage of Participation 3]	Total Contract Value At 4]			Date of Award 5]	Contract Duration 6]	
				Award	Completion	Escalated Value to Present Prices		Start	Completed

**NOTE :**

- 1] As appearing in the contract executed by the parties.
  - 2] With special reference to the Scope of Works of the Project as described/enumerated in the Contract.
  - 3] Indicate the percentage of participation and whether as Sole Contractor, Sub-Contractor or Member in a Joint Venture / Consortium.
  - 4] Indicate the FOREX used if Contract Value is expressed in a currency other than the Philippine Peso. Attached the computation for the escalated contract value.
  - 5] As appearing in the Notice of Award.
  - 6] As appearing in the Notice to proceed and Certificate of Completion.
- A. The bidder must have an experience of having completed a SLCC that is similar to the contract to be bid equivalent to at least fifty percent (50%) of the ABC, adjusted if necessary, by the Bidder to current prices using the PSA consumer price indices. A contract is considered to be "similar" to the contract to be bid if it has the same Major Categories of Work as stated in the Bid Data Sheet (BDS).
- B. This Statement shall be supported by:
- a. Notice of Award, Notice to Proceed and Contract.
  - b. Project Owner's Certificate of Final Acceptance issued by the owner and/ or Constructors Performance Evaluation System (CPES) Final Rating, which must be at least Satisfactory. The said Certificate of Acceptance shall contain the following: 1) Name of project owner that issued the certificate, 2) Name of Contractor/ Constructor, 3) Name of Contract, and 4) Contract Duration.
  - c. Recapitulation or Final Bill of Quantities.

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

\_\_\_\_\_  
Date

Revised: September 2021

**STATEMENT OF THE BIDDER'S EXPERIENCE ON MAJOR CATEGORIES OF WORK OF THE SLCC INCLUDING OTHER COMPLETED CONTRACTS  
SIMILAR TO THE CONTRACT TO BE BID**

Major Categories of Work 1]	Unit of Measure 1]	Quantity 1]	SLCC similar to the contract to be bid 2]	Other completed contracts similar to the contract to be bid 2]				Unit of Measure 2]	Quantity 2]
			Name of the contract	Name of the contract	Name of the contract	Name of the contract			
1. Reinforced Concrete Works	cu.m	149.00							
2. Placing of Fill materials	cu.m	2,086.00							
3. Construction of Portland Cement Concrete Pavement, PCCP	sq.m.	773.00							

**NOTE:**

1] As stated in the Bid Data Sheet.

2] As appearing in the Recapitulation and/ or Final Bill of Quantities.

This statement shall be supported by:

a. Notice of Award, Notice to Proceed and Contract.

b. Project Owner's Certificate of Final Acceptance issued by the owner and/ or Constructors Performance Evaluation System (CPES) Final Rating, of at least satisfactory. The said Certificate of Acceptance shall contain the following: 1) Name of project owner that issued the certificate, 2) Name of Contractor/Constructor, 3) Name of Contract, and 4) Contract Duration.

c. Recapitulation and/ or Final Bill of Quantities.

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
Signatory's Legal Capacity

\_\_\_\_\_  
Date

Revised: September 2021

## FINANCIAL DATA

- A. The prospective bidder's audited Financial Statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "RECEIVED" by the Bureau of Internal Revenue (BIR), or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission.

	Year
1. Total Assets	
2. Current Assets	
3. Total Liabilities	
4. Current Liabilities	
5. Net worth (1-3)	
6. Net Working Capital (2-4)	

- B. The computation of the bidders Net Financial Contracting Capacity (NFCC) must be at least equal to the ABC to be bid, as follows:

NFCC = [ (Current assets minus current liabilities) (15) ] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started coinciding with the contract to be bid.

NFCC = \_\_\_\_\_

Attached herewith are certified true copies of the audited financial statements stamped received by the BIR or BIR authorized collecting agent for the latest/immediately preceding calendar year.

\_\_\_\_\_  
Name of Firm/Applicant

\_\_\_\_\_  
Authorized Signing Official

Date: \_\_\_\_\_

**NOTES:**

If Partnership or Joint Venture, each Partner or Member Firm of Joint venture shall submit separate financial statements.

# STATEMENT OF THE BIDDER'S KEY PERSONNEL PLEDGED FOR THE CONTRACT TO BE BID

I hereby declare that the following key personnel are qualified and available for the duration of the contract to be bid:

Position of Key Personnel 1]	Name	No. of Key Personnel	Similar Experience in the Position (Years) 2]	Total Experience in the Position (Years)	Attachment(s)	Annex(es)
Project Manager					PRC License (CE Preferred) Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Project Engineer					PRC License (CE Preferred) Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Materials Engineer I					PRC License (CE Preferred) Submit Valid and Renewed DPWH Certificate of Accreditation Submit Accreditation Identification Card as Materials Engineer Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Construction Safety and Health Officer					Certificate of Safety and Health Construction Related Course issued by DOLE Accredited Trainings Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Foreman					Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Other Position(s)					Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "

NOTE: 1] As stated in the Bid Data Sheet

2] The number of years of experience of the key personnel shall be as indicated in the qualification and experience data or curriculum vitae.

Minimum qualification requirements: The key personnel must have a work experience that is similar in nature and complexity to the contract to be bid.

Project Manager - Five (5) years

Project Engineer - Three (3) years

Foreman - Five (5) years

Construction Safety and Health Officer – One (1) year

Materials Engineer – One (1) year

Materials Engineer I – for projects costing up to 100M

Materials Engineer II – for projects costing more than 100M

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

\_\_\_\_\_  
Date

Revised: September 2021

# STATEMENT OF THE BIDDER'S EQUIPMENT PLEDGED FOR THE CONTRACT TO BE BID

I hereby declare that the following equipment are in good operating condition and available for the duration of the contract to be bid:

DESCRIPTION (Type, Model, Make)	No. of Unit(s)	Capacity/ Output  1]	Owned, Leased, and/or under purchased agreement 2]	Proof of Ownership/ Leased/ Under Purchase Agreement (Mark as Annex "A.....Z") 3]	OTHER INFORMATION (As Applicable)				
					Manufacturer	Engine Serial No.	Chassis No./ Name of Vessel	Location	Status

## NOTE:

- 1] The unit of capacity of the pledged equipment shall be as indicated in the Proof of Ownership, i.e. GW (for crane barge), DWT (for deck barge and hopper barge), Ton (for crane, road roller and drop hammer), kg.-m/blow (for diesel hammer), cu.m. (for dump truck), hp (for tugboat, road grader, bulldozer and concrete vibrator), cfm (for compressor), gal (for water truck with pump), amp (for welding machine), bagger (for concrete mixer). If the capacity of the pledged equipment is not indicated in the Proof of Ownership/Leased Contract/Purchased Agreement, submit other proof of capacity such as specifications, brochures or other verifiable printouts indicating the model name, model number and other details of the equipment.
- 2] Indicate if the pledged equipment are owned, leased or under purchase agreement.
- 3] If the pledged equipment is owned, it should be in the name of the bidder. Submit proof of ownership, i.e. deed of sale, sales invoice, official receipt; For owned Water Truck, Dump Truck and Transit Mixer submit LTO Certificate of Registration and valid Official Receipt; For owned barge/tugboat, submit Marina Certificate of Ownership and valid Cargo Ship Safety Certificate.

If the pledged equipment is leased/under purchased agreement, submit certification of availability of equipment from the equipment lessor/vendor for the duration of the project, and duly Notarized copy of leased contract/purchased agreement.

If the pledged barge/tugboat is leased/under purchase agreement, submit certification of availability of barge/tugboat from the equipment lessor/vendor for the duration of the project, and duly Notarized copy of leased contract/purchased agreement together with a copy of the Marina Certificate of Ownership and valid Cargo Ship Safety Certificate.

The Minimum Major Equipment Requirements are listed in Section 8, Annex 3.

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

\_\_\_\_\_  
Date

Revised: September 2021

**Omnibus Sworn Statement for Sole Proprietorship**  
*[shall be submitted with the Bid]*

REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

**AFFIDAVIT**

I, \_\_\_\_\_, of legal age, [Civil Status], [Nationality], and residing at \_\_\_\_\_, after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the sole proprietor or authorized representative of \_\_\_\_\_ with office address at \_\_\_\_\_;
2. As the owner and sole proprietor, or authorized representative of \_\_\_\_\_, I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for **Restoration of Damaged Port Facilities Caused by Typhoon Odette, Port of Maasin, Southern Leyte of the Philippine Ports Authority**, as shown in the attached duly notarized Special Power of Attorney;
3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. The owner or sole proprietor is not related to the Head of the Procuring Entity, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;
7. [Name of Bidder] complies with existing labor laws and standards; and
8. [Name of Bidder] is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
  - a. Carefully examining all of the Bidding Documents;
  - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
  - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the [Name of the Project].

9. [Name of Bidder] did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_ day of \_\_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Name of Bidder/ Authorized Representative  
(Signatory's Legal Capacity)  
AFFIANT

[Jurat]  
*[Format shall be based on the latest Rules on Notarial Practice]*

**Omnibus Sworn Statement for Partnership or Cooperative**  
*[shall be submitted with the Bid]*

REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

**AFFIDAVIT**

I, \_\_\_\_\_, of legal age, [Civil Status], [Nationality], and residing at \_\_\_\_\_, after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the duly authorized and designated representative of \_\_\_\_\_ with office address at \_\_\_\_\_;
2. I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for **Restoration of Damaged Port Facilities Caused by Typhoon Odette, Port of Maasin, Southern Leyte** of the **Philippine Ports Authority**, as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];
3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. None of the officers and members of [Name of Bidder] is related to the Head of the Procuring Entity, Procuring Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;
7. [Name of Bidder] complies with existing labor laws and standards; and
8. [Name of Bidder] is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
  - a. Carefully examining all of the Bidding Documents;
  - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
  - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the [Name of the Project].



9. [Name of Bidder] did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_ day of \_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Name of Bidder/ Authorized Representative  
(Signatory's Legal Capacity)  
AFFLIANT

[Jurat]

*[Format shall be based on the latest Rules on Notarial Practice]*

**Omnibus Sworn Statement for Corporation or Joint Venture**  
*[shall be submitted with the Bid]*

REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

**AFFIDAVIT**

I, \_\_\_\_\_, of legal age, [Civil Status], [Nationality], and residing at \_\_\_\_\_, after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the duly authorized and designated representative of \_\_\_\_\_ with office address at \_\_\_\_\_;
2. I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for **Restoration of Damaged Port Facilities Caused by Typhoon Odette, Port of Maasin, Southern Leyte**, as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];
3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. None of the officers, directors, and controlling stockholders of [Name of Bidder] is related to the Head of the Procuring Entity, Procuring Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;
7. [Name of Bidder] complies with existing labor laws and standards; and
8. [Name of Bidder] is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
  - a. Carefully examining all of the Bidding Documents;
  - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
  - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the [Name of the Project].

9. [Name of Bidder] did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_ day of \_\_\_, 20\_\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Name of Bidder/ Authorized Representative  
(Signatory's Legal Capacity)  
AFFILIANT

**[Jurat]**

*[Format shall be based on the latest Rules on Notarial Practice]*

### **Bid Securing Declaration Form**

*[shall be submitted with the Bid if bidder opts to provide this form of bid security]*

REPUBLIC OF THE PHILIPPINES)  
CITY OF \_\_\_\_\_) S.S.

#### **BID SECURING DECLARATION**

**Project Identification No.:** \_\_\_\_\_

**To: Philippine Ports Authority**  
PPA Building, Bonifacio Drive,  
South Harbor, Port Area, Manila

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f), of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
  - a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
  - b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
  - c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this \_\_\_\_ day of [month] [year] at [place of execution].

\_\_\_\_\_  
Name of Bidder/ Authorized Representative  
(Signatory's Legal Capacity)  
AFFIANT

**[Jurat]**

*[Format shall be based on the latest Rules on Notarial Practice]*

## CONSTRUCTION METHODOLOGY

Name of Project : \_\_\_\_\_  
Project Description : \_\_\_\_\_  
Location : \_\_\_\_\_

### MINIMUM SCOPE OF CONSTRUCTION METHODOLOGY

- Retaining wall with anchor tie rods
- Earthworks
- Supply, backfilling, spreading and compaction of sub-base course
- Supply, backfilling, spreading and compaction of base course
- Supply, place and compaction of 4000 psi portland cement concrete pavement
- Concrete fence with plantbox
- Mooring and fendering system

### NOTES:

The narrative construction method will guide and familiarize the contractor and the PPA on how the project shall be carried out in accordance with the highest standard of workmanship.

The construction method shall be consistent with the Bar Chart / S-Curve Schedule, Equipment Schedule and Manpower Schedule.

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

## MANPOWER SCHEDULE

Name of Project : \_\_\_\_\_

Project Description : \_\_\_\_\_

Location : \_\_\_\_\_

MANPOWER (Minimum)	CONTRACT DURATION (_____ Calendar Days)																							
	M O N T H L Y																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Project Manager																								
Project Engineer																								
Materials Engineer I																								
Construction Safety and Health Officer																								
Foreman																								
Specify other applicable positions, ie.:																								
- Carpenter																								
- Steelman																								
- Mason																								
- Electrician																								
- Rigger																								
- Others																								

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)

Revised: September 2021

### EQUIPMENT UTILIZATION SCHEDULE

**Name of Project :** \_\_\_\_\_

**Project Description :** \_\_\_\_\_

**Location** : \_\_\_\_\_

[illegible]

**Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)**

## CASHFLOW BY QUARTER AND PAYMENT SCHEDULE

Name of Project: : \_\_\_\_\_

Project Description : \_\_\_\_\_

Location : \_\_\_\_\_

Project Duration (days or months)	Payment Schedule (Monthly, in Pesos)	Cash flow (Quarterly, in Pesos)
<b>TOTAL</b>		

### NOTES

- The cash flow by quarter and payment schedule should be consistent with the Bar Chart and S-curb.
- Payment schedule shall not be more than once a month.

\_\_\_\_\_  
Name of Bidder/Authorized Representative  
(Signatory's Legal Capacity)



## **Contract Agreement Form for the Procurement of Infrastructure Projects (Revised)**

*[not required to be submitted with the Bid, but it shall be submitted within ten (10) days after  
receiving the Notice of Award]*

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### **CONTRACT AGREEMENT**

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ between **Philippine Ports Authority** with principal office at PPA Building, Bonifacio Drive, South Harbor, Port Area, Manila (hereinafter called the "Entity") and **[name and address of Contractor]** (hereinafter called the "Contractor").

WHEREAS, the Entity is desirous that the Contractor execute **[name and identification number of contract]** (hereinafter called "the Works") and the Entity has accepted the Bid for **[contract price in words and figures in specified currency]** by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

#### **NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:**

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents as required by the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, viz.:

**a. Philippine Bidding Documents (PBDs);**

- i. Drawings/Plans;
- ii. Specifications;
- iii. Bill of Quantities;
- iv. General and Special Conditions of Contract;
- v. Supplemental or Bid Bulletins, if any;

**b. Winning bidder's bid, including the Eligibility requirements, Technical and Financial Proposals, and all other documents or statements submitted;**

Bid form, including all the documents/statements contained in the Bidder's bidding envelopes, as annexes, and all other documents submitted (e.g., Bidder's response to request for clarifications on the bid), including corrections to the bid, if any, resulting from the Procuring Entity's bid evaluation;

**c. Performance Security;**

**d. Notice of Award of Contract and the Bidder's conforme thereto; and**

- e. Other contract documents that may be required by existing laws and/or the Procuring Entity concerned in the PBDs. Winning bidder agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as the Notice to Proceed, Variation Orders, and Warranty Security, shall likewise form part of the Contract.
3. In consideration for the sum of [total contract price in words and figures] or such other sums as may be ascertained, [Named of the bidder] agrees to [state the object of the contract] in accordance with his/her/its Bid.
4. The **Philippine Ports Authority** agrees to pay the above-mentioned sum in accordance with the terms of the Bidding.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

**JAY DANIEL R. SANTIAGO**  
General Manager

for:

**Philippine Ports Authority**

**Name of Bidder/ Authorized  
Representative  
(Signatory's Legal Capacity)**

for:

**Contractor**

#### **Acknowledgment**

*[Format shall be based on the latest Rules on Notarial Practice]*