acetylene ratio of at least 1.0. The oxyacetylene flames shall be applied to the surfaces of the steel in such a manner and at such speed that the surfaces are dehydrated; dirt, rust loose scale in the form of blisters or scabs, and similar foreign matters are freed by the rapid, intense heating by the flames. The number arrangement and manipulation of the flames shall be such that all parts of the surfaces to be painted are adequately cleaned and dehydrated.

c. Promptly after the application of the flames, the surfaces of the steel shall be wire brushed, hand scraped wherever necessary, and then swept and dusted to remove all free materials and foreign particles.

d. Paint shall be applied promptly after the steel has been cleaned and while the temperature of the steel is still above that of the surrounding atmosphere.

5. Weather Conditions

a. Exterior Coatings

Coatings to surface shall not be applied during foggy or rainy weather, or under the following surface temperature conditions: below 4°C, or over 35°C, unless approved by the Engineer.

b. Interior Coatings

Coatings shall be applied when surfaces to be painted are dry and the following surface temperatures can be maintained: between 18 to 35°C during the application.

6. Application

a. Paint shall be factory tinted and mixed. All paint shall be field mixed before applying in order to keep the pigments in uniform suspension.

b. Field Painting

When the erection work is complete, including all bolting and straightening of bent metal, all adhering rust, scale, dirt, grease or other foreign materials shall be removed as specified above.

As soon as the Engineer has examined and approved each steel and metal works structures, all field bolts, all welds, and any surfaces from which the top or first coat of paint has become worn off, or has otherwise come defective shall be cleaned and thoroughly covered with one coat of paint.

Surfaces to be bolted and surfaces which shall be in contact with concrete, shall not be painted. Surfaces which shall be inaccessible after erection shall be painted with such field coats as are required. When the paint applied for retouching the shop coat has thoroughly dried, and the field cleaning has been satisfactorily completed, such field coats as are required shall be applied. In no case shall a succeeding coat be applied until the previous coat is dry throughout the full thickness of the paint film. All small cracks and cavities which were not sealed in a watertight manner by the first field coat shall be filled with a pasty mixture of red lead and linseed oil before the second coat is applied.

The following provision shall apply to the application of both coats. To secure a maximum coating on edges of plates or shapes, bolt heads and other parts

subjected to special wear and attack, the edges shall first be striped with a longitudinal motion and the bolt heads with a rotary motion of the brush, followed immediately by the general painting of the whole surface, including the edges and bolt heads.

The application of the second field coat shall be deferred until adjoining concrete work has been placed and finished. If concreting operations have damaged the paint, the surface shall be re-cleaned and repainted.

c. General Manners

Painting shall be done in a neat and workmanlike manner. Paint may be applied with hand brushes or be spraying, except aluminum paint which preferably shall be applied by spraying. By either method the coating of paint applied shall be smoothly and uniformly spread so that no excess paint shall collect at any point. If the work done by spraying is not satisfactory to the Engineer hand brushing shall be required.

d. Brushing

When brushes are used, the paint shall be so manipulated under the brush as to produce a smooth, uniform, even coating in close contact with the metal or with previously applied paint, and shall be worked into all corners and crevices.

e. Spraying

Power spraying equipment shall be used to apply the paint in a fine spray. Without the addition of any paint, the sprayed area shall be immediately followed by brushing, when necessary, to secure uniform coverage and to eliminate wrinkling, blistering and air holes.

f. Removal of Paint

If the painting is unsatisfactory to the Engineer the paint shall be removed and the metal thoroughly cleaned and repainted.

ITEM 07 : 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 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	ASTM D412
		Elongation	350% minimum		ASTM D1456
		Hardness	76Hs maximum	Spring Type hardness test (Type A)	ASTM D2240
	After Aging	Tensile Strength	Not less than 80% of original value	Aging by air heating: 70±1°C x 96 hours.	ASTM D412
		Elongation			ASTM D1456
		Hardness	Not more than original value +8°		ASTM D2240
	Compression Test		30% maximum	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 (ASTM A36) and to the required shapes and sizes shown on the approved plan/drawings.

TESTING, SAMPLING, INSPECTION, ACCEPTANCE, MARKING AND PACKAGING

Testing

Sample rubber dock fenders that shall be incorporated in the project shall be subjected to tests. 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.

All units shall be tested for performance. The fender shall be compressed repeatedly three (3) times to the maximum deflection at the speed from 2 to 8 cm. per minute. The load and deflection values shall be recorded with the precision of 0.1tf and 0.5mm respectively. The results shall be plotted in the form of load-deflection-energy absorption curves. The average data obtained in the second and third test loading shall be considered as performance values.

Inspection

All fenders of each type shall be inspected for compliance to specified dimensions and all fenders shall be inspected 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.

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 ≥ Specified E but not more than 10%

   R = Reaction force, R ≤ Specified R but not more than 10%

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 08 : EXCAVATION WORKS

SCOPE OF WORK

General Provisions

1. The area shall be excavated at the *required depth* as indicated on the Drawing/s.

2. The work includes furnishing of all labor, materials, plants and equipment required to complete/finish the excavation works.

Work Schedules

1. After examinations of all relevant data, coordination needs, work constrains, equipment to be used and other matters, a PERT/CPM diagram showing the detailed schedule/duration and sequences for the execution of excavation work shall be submitted to the Engineer for approval within 15 days before the proposed commencement of the Works.

2. Before the commencement of excavation works, the Contractor together with the Authority's Representatives and Surveyors shall conduct a pre-joint hydrographic and topographic survey which will form basis of actual quantity of excavated materials to be removed/excavated.

3. Prior to excavation works, the Contractor shall establish visible markers to clearly define the limits of the excavation.

EQUIPMENT/LAYOUT OF WORK

Plant

1. The Contractor shall keep on the job sufficient equipment/plant to meet the requirement of the project.

2. The equipment/plant shall be in satisfactorily operating conditions and capable of efficiently performing the excavation works with safety as set forth herein and shall be subject to inspection by the Engineer at all times.

Physical Data/Layout of Work

1. The Authority does not guarantee to keep the project excavation area free from obstructions.

2. The Contractor shall conduct the work in such manner not to disrupt the port operational activities at all times.

3. The Contractor shall layout his work from the government established ranges and gauges which shall be pointed out to him prior to commencement of the excavation work but shall be responsible for all measurements in connection therewith.

4. The Contractor shall furnish, at his own expense, survey equipment, range markers, poles, buoys, etc., and labor as may be required in laying out any part of the excavation work.

5. The Contractor shall be responsible for the installation, maintenance and preservation of all gauges, ranges, platforms, excavation limit markers. Upon completion of the work, the Contractor shall promptly remove all ranges, markers, and other marker placed by him that may be detrimental to port operation.

EXECUTION

EXCAVATION WORKS

Description

1. This item shall consist for the removal of existing seabed/fill in conformity with the dimensions shown in hydrographic and topographic survey plan or as established by the Engineer.

2. The excavated suitable materials shall be used if proven to pass the requirements as backfilling materials.

3. The excavated good materials shall be stockpiled within the project site to be designated by the Engineer. The good materials shall be used for backfilling as directed by the Engineer.

Progress of Work

1. Upon mobilizing sufficient labors, materials, plants and equipment, the Contractor shall works at such hours as may be necessary, subject to existing laws, to ensure the prosecution of work in accordance with the approved schedule (PERT/CPM). If the Contractor falls behind the approved excavation schedule, the Engineer may require the Contractor to increase the number of shifts and/or equipment without extra cost to the Authority.

2. Failure of the Contractor to comply with the requirements shall be reasonable grounds to assume that the Contractor is not performing the excavation work with such diligence as will insure completion within the specified time, in which case, the Engineer may be compelled to take steps to protect the interest of the PPA.

3. When the Contractor elects to work overtime and on Sundays and legal holidays, appropriate authority from those concern must be secured and notice of his intention to do so shall be submitted to the Engineer within the reasonable time in advance thereof.

4. The Contractor shall *submit daily excavation reports in duplicate* within two (2) days after the end of the day covered by the report duly signed by the Contractor or his duly authorized representative and the Engineer. The report shall be made in forms and to be provided by the Authority.

5. The Contractor shall take necessary measures to protect the life and health of his men in accordance with the existing laws and regulations of the Government. The Contractor shall provide safety devices to Engineer and personnel while on board the equipment/plant in performance of their official duties.

6. The Contractor shall put up and maintain such markers and buoys as will prevent any accident in consequence of his excavation work. No liability whatsoever attaches to the Authority, if as a result of the operations or installation, an accident happens in the project area. The Contractor shall hold the Authority free and harmless against any or all claims of persons involve in such accidents.

EXCAVATED MATERIALS

1. Disposal of excavated unsuitable materials from seabed shall be transported and deposited at 10.00 kms. (minimum) away from the area to be excavated.

2. Stockpiling and usage of excavated materials from existing backfill shall be approved by the Engineer in coordination with the Agency.

Displace Materials

1. Should the Contractor, during the progress of the excavation works, lose, dump, throw overboard, sink, misplace any materials, plant, machinery or appliance which may be dangerous to or obstruct navigation and/or port operations activities, the Contractor shall immediately give notice with description and location of such obstruction to the Authority and when required, shall mark the obstruction until such time the same is removed.

2. Should the Contractor refuse, neglect or delay compliance with the above requirements, such obstructions shall be removed by the Authority and the cost of its removal shall be deducted from any money due or to become due to the Contractor or proceeded against his performance bond.

3. Any excavated materials that is deposited other than the designated area will not be paid and the Contractor shall be required to remove such misplaced materials and deposit it to where directed at his expense.

INSPECTION

1. No PPA Project Engineer or Authority's Representative is authorized to change any provisions of the excavation specifications without written authorization of the Authority.

2. Nor shall the presence or absence of a PPA project Engineer or Authority's Representative relieve the Contractor from any of his responsibility under the Contract.

PAY LIMITS

It is to be clearly understood that no payments will be made for excavation beyond the excavation limits. The Contractor shall bear all the cost of over excavation beyond the project depth and in addition, of any remedial measures ordered by the Authority or its representative to be taken in areas over excavation is not permitted.

SOUNDINGS

1. The Contractor, in the presence or joint with the Authority's Representative and during the progress of the excavation works, shall perform continuous checking of the depth thru soundings.

2. For the purpose of work progress payments; the Contractor, jointly with the Authority's Representative and/or Surveyors, shall conduct soundings on areas subjected to excavation activities during the month or the preceding period for which payment is being claimed.

3. The Contractor will be responsible for all costs involved in the above mentioned such as costs for the survey equipment, measurement, markings, materials and other cost related thereto.

ITEM 09 : ROCKWORKS

SCOPE OF WORK

The work includes the furnishing of all labor, materials and equipment required for the rock works including armour rocks, underlayer and rock fill in accordance with the Specifications and as indicated in the drawings or as directed by the Engineer.

SETTING OUT OF WORKS

1. Topographic/Hydrographic Survey

   Prior to commencement of Works, the Contractor together with the Engineer shall conduct topographic and hydrographic surveys in order to establish the actual field condition or bathymetry of the project site. The said survey shall be used as the basis of quantity measurement.

2. The Contractor shall set out the Works and shall solely be responsible for the accuracy of such undertaking. Visible construction markers shall be used to clearly define horizontal limits prior to placing of any material.

MATERIAL REQUIREMENTS

1. All rocks to be used shall be angular, hard, durable and not likely to disintegrate in seawater. Rock layers to be installed should more or less be "global in shape", "angular in surface" and should avoid "river run rocks". Rocks that are sub-angular may be subject to the approval of the Engineer. Rounded or well rounded pieces will not be accepted.

2. All rocks shall have a minimum unit weight of 2,650 kg per cubic meter (specific gravity 2.65) of solid materials when measured dry.

3. Rocks with specific gravity higher than the above specified is preferable and will readily be accepted. But no adjustment (increase) in the contract price will be made on this account.

4. Rocks of the primary cover layer shall be sound, durable and hard. It shall be free from laminations, weak cleavages, and undesirable weathering, and shall be of such character that it will not disintegrate from the action of the air, seawater, or in handling and placing. All stone shall be angular quarry stone.

5. All rocks shall conform to the following test designations:

Apparent specific gravity	ASTM C 127
Abrasion	ASTM C 535

EXECUTION

QUARRY SITE AND ROCK QUANTITY

1. It is the Contractor's responsibility to make necessary surveys / investigations on quarry sites applicable to the Works, taking into consideration the nature of the rock works required under the Contract such as required quality, total quantity and daily required quantity, transportation method and route etc.,

2. The Contractor shall submit data on characteristics of proposed quarry sites together with the location of sites, test results of their products and samples for the approval of the Engineer.

3. When the Contractor intends to operate a quarry for the Works, the Contractor shall take all the responsibilities in connection with its operation including, but not limited to, obtaining all necessary permits and approvals, payment of safety measures or like (if any), provisions and maintenance of safety measures and temporary access roads, all of private and public roads and temporary jetties to be used to transport quarried materials and the compliance with all regulations etc. required by the authorities having jurisdiction over any part of the operation.

   Should any explosive be used in the quarry operations, the Contractor shall be responsible to meet laws and regulations, wherever applicable, established by the Local Government and Central Government Department concerned.

4. Despite the Engineer's previous approval of the natural rock and borrow pits, the Engineer reserves the right to suspend any operation in connection with the rock, if, in its opinion, such rock is not suitable for the work. In such case, the Contractor shall comply with the Engineer's instructions.

5. The finish bulkhead shall be true to grade and section. The spaces/voids between rocks shall be filled/sealed with 2 kg. to 16 kg. rocks and shall be approved by the Engineer before placing geotextile filter thereon to prevent the filling materials (soil and sand) from escaping to cause scouring and settlement of finished surface.

STORAGE OF MATERIALS

Quarried rock materials shall be stored by weight/class or in a manner approved by the Engineer and in a yard kept clean, free from undesirable materials.

SAMPLING TEST

1. Thirty (30) days prior to commencement of rock works, samples and test results of rock material which conforms to the Specifications called for in the Contract shall be submitted to the Engineer for evaluation and approval.

2. Rock samples from different sources and of different classes shall also be submitted, together with test results and its corresponding certificates, for the Engineer's approval.

3. Rocks accepted at the quarries before shipments or at the site before placement shall not be used as a waiver. The Engineer has the right to reject any inferior rock quality.

4. Samples for each class of approved materials are to be kept in the field for comparison/checking of delivered rock materials. A test shall be required for every 1,500 cu.m.

CROSS-SECTIONS OF COMPLETED ROCKWORK

Cross-sections showing the elevations of the completed rock works and the terrain of the existing seabed prior to construction shall go together with every progress report and request for progress or final payment.

Rock works which was previously paid should be easily identified from sections being requested for payment.

ITEM 10 : 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 cementatious 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
A. Physical Characteristics:			
Minimum Mass (per unit area)	(g/m^2)	540	ASTM D5261
Thickness (F=2 kpa)	mm	4.5	ASTM D5199
B. Mechanical Properties:			
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
C. Hydraulic Properties:			
Effective Opening Size (O_{90} Wet Sieving)	(mm)	0.08	ASTM D4751
Water Permeability: Permittivity	(s^{-1})	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-wooven 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 11 : RECLAMATION AND FILL

SCOPE OF WORK

This item shall consist of the construction of back-up area in accordance with the Specifications and in conformity with the lines, grades, and dimensions shown on the Plans or established by the Engineer.

The area to be upgraded shall be as indicated on the Drawings.

The works includes furnishing of all labor, materials and equipment required to complete/finish the upgrading of the area in accordance with the Drawings and the Specifications.

The following major items of works are included:

1. Supply and fill of suitable materials to places required to upgrade elevation of areas as shown in the drawings.

    a. Compaction of fill materials
    b. Supply and placing of filter fabric

2. The work may also include the construction of temporary dike or structure to enclose the reclamation material before the completion of a permanent waterfront containment structure.

MATERIAL REQUIREMENTS

1. Filling Materials

    a. General

    All sources of filling materials shall be approved by the Engineer.

    Appropriate quantities of sample of all materials to be used in the Works shall be submitted for acceptance and approval by the Engineer thirty (30) days before the commencement of work.

    General filling shall consist of approved material from approved sources of suitable grading obtained from excavation, quarries or borrow pits, without excess fines, clay or silt, free from vegetation and organic matter.

    Sample of approved materials shall be kept/stored in the field for ready reference/comparison of the delivered materials.

    The Contractor shall ensure that adequate quantities of required materials that comply with the specifications and quality approved by the engineer are available at all times.

    b. Fill Materials other than Dredged/Excavated Materials

    Fill materials for reclamation purposes other than dredged materials shall be pit sand, quarry run, gravel or mine tailings. The fill material shall be of the same quality or better as approved by the Engineer.

c. Type of Fill Materials

c.1 Sand and Gravel Fill (Offshore/Reclamation)

The materials shall be composed of at least 50% sand and 50% gravel in terms of volume and shall be free from rock boulders, wood, scrap, vegetables, and refuse. The materials shall not have organic content and the maximum particle size shall not exceed 100mm diameter. Source of materials shall be river or mountain quarry or manufactured.

c.2 Excavated Materials from Seabed (Offshore/Reclamation)

The excavated materials shall be used for backfilling as directed by the Engineer.

c.3 Select Materials (General Embankment)

All materials used for fill shall be free of rock boulders, wood, scrap materials, organic matters and refuse.

The material shall not have high organic content and shall meet the following requirements:

i. Not more than 10 percent by weight shall pass the No. 200 sieve (75 microns).

ii. Maximum particles size shall not exceed 75 mm.

iii. The fill materials shall be capable of being compacted in the manner and to the density of not less than 95%.

iv. The material shall have a plasticity index of not more than 6 as determined by AASHTO T 90.

v. The material shall have a soaked CBR value of not less than 25% as determined by AASHTO T 193.

2. Unsuitable Material – Material other than suitable materials such as:

(a) Materials containing detrimental quantities of organic materials, such as grass, roots and sewerage.

(b) Organic soils such as peat and muck.

(c) Soils with liquid limit exceeding 80 and/or plasticity index exceeding 55.

(d) Soils with a natural water content exceeding 100%.

(e) Soils with very low natural density, 800 kg/m3 or lower.

(f) Soils that cannot be properly compacted as determined by the Engineer.

will not be accepted by the Engineer.

EXECUTION

Reclamation and Fill

a. General

The Contractor shall be responsible for all ancillary earthworks that are necessary for the reception of the fill material and including, all spout handling, temporary dike or shoring construction where necessary, temporary protection to dikes in the sea and drainage of excess water.

The arrangements of these ancillary earthworks shall be laid out in consultation with the Engineer and to the Engineer's satisfaction and care shall be taken to minimize the loss of fill.

b. Replacement, backfilling and reclamation may be done by any method acceptable to the Engineer. Prior to start of Work, the Contractor shall submit his method and sequence of performing the works to the Engineer for approval. However, the Engineer's approval of the method and sequence of construction shall not release the Contractor from the responsibility for the adequacy of labor and equipment.

c. The Engineer shall approve the type of material to be used as fill prior to its placement. If the material is rejected, such material shall be deposited into areas designated or as directed by the Engineer.

d. Reclamation of fill material shall be placed in horizontal layers not exceeding 200mm (8 inches), loose measurement, and shall be compacted as specified before the next layer is placed. Effective spreading equipment shall be used on each lift to obtain uniform thickness prior to compacting. As the compaction of each layer progresses, continuous leveling and manipulating will be required to assure uniform density. Water shall be added or removed, if necessary, in order to obtain the required density. Removal of water shall be accomplished through aeration by plowing, blading, dicing, or other methods satisfactory to the Engineer.

Dumping and rolling areas shall be kept separate, and no lift shall be covered by another until the necessary compaction is obtained.

Hauling and leveling equipment shall be so routed and distributed over each layer of the fill in such a manner as to make use of compaction effort afforded thereby and to minimize rutting and uneven compaction.

TRIAL SECTION

Before finish grade construction is started, the Contractor shall spread and compact trial sections as directed by the Engineer. The purpose of the trial sections is to check the suitability of the materials and the efficiency of the equipment and construction method which is proposed to be used by the Contractor. Therefore, the Contractor must use the same material, equipment and procedures that he proposes to use for the main work. One trial section of about 500 m^2 shall be made for every type of material and/or construction equipment/procedure proposed for use.

After final compaction of each trial section, the Contractor shall carry out such field density tests and other tests required as directed by the Engineer.

If a trial section shows that the proposed materials, equipment or procedures in the Engineer's opinion are not suitable for sub-base, the material shall be removed at the Contractor's expense, and a new trial section shall be constructed.

If the basic conditions regarding the type of material or procedure change during the execution of the work, new trial sections shall be constructed.

CROSS-SECTIONS OF COMPLETED RECLAMATION

Cross-sections showing the elevations of the completed reclamation and the terrain of the existing seabed prior to construction shall go together with every progress report and request for progress or final payment.

FIELD COMPACTION TEST

Field Density tests to determine the percent of compaction of the compactable material shall be conducted. Compaction of each layer thereafter shall continue until the required field density in accordance with AASHTO T/180 Method D has been achieved. In place density determination shall be made in accordance with AASHTO T191/ ASTM D 1556.

TOLERANCE

Elevation : plus 5 cm.

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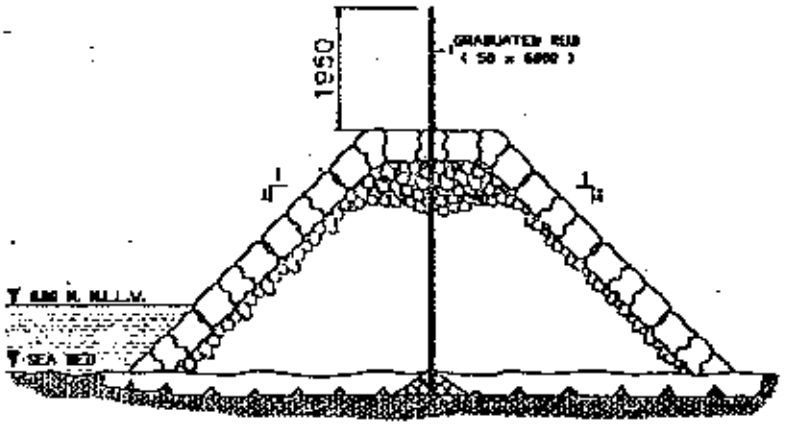
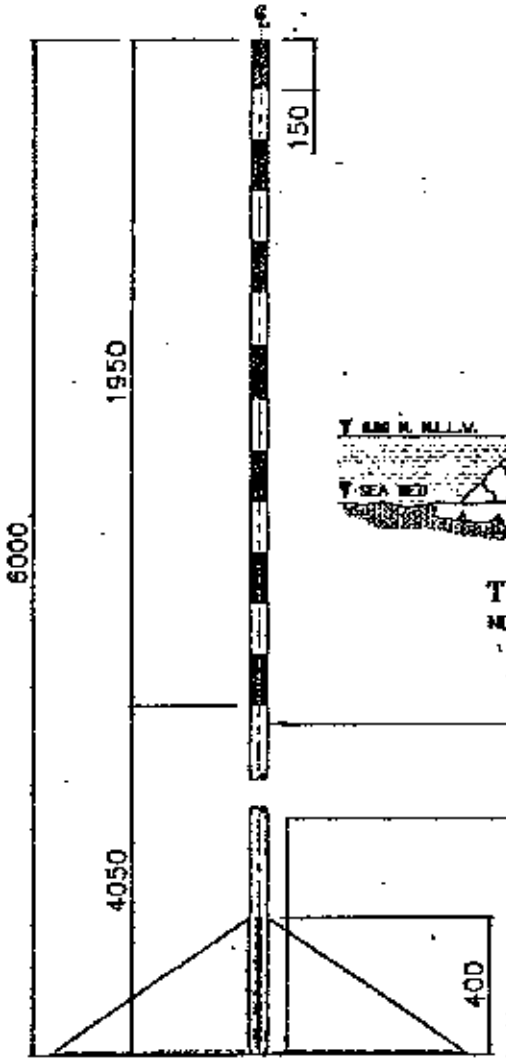


TYPICAL DETAIL OF INSTALLATION

NOT TO SCALE



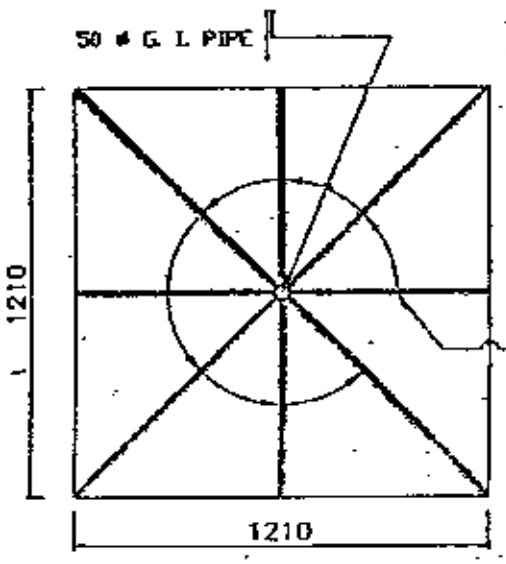
ELEVATION

SCALE 1:20

NOTES : -

1) ALL JOINTS SHALL BE FILLET WELDED ALL AROUND.

2) THE GRADUATED SETTLEMENT ROD INCLUDING THE BASE SHALL BE PAINTED WITH TWO (2) COATS OF ANTI-RUST PAINT AND THE 1.95 M. PAINTED WITH ALTERNATIVE BANDS OF RED AND WHITE ENAMEL, 0.15 M. LONG ALL AROUND.



PLAN

SCALE 1:20

DETAILS OF STANDARD GRADUATED SETTLEMENT ROD

ITEM 12 : AGGREGATE SUB BASE COURSE

DESCRIPTION

This item shall consist of furnishing, placing and compacting an aggregate subbase course on a prepared subgrade in accordance with this Specification and the lines, grades and cross-sections shown on the Plans, or as directed by the Engineer.

MATERIAL REQUIREMENTS

Aggregate for subbase shall consist of hard, durable particles or fragments of crushed stone, crushed slag, or crushed or natural gravel and filler of natural or crushed sand or other finely divided mineral matter. The composite material shall be free from vegetable matter and lumps or balls of clay, and shall be of such nature that it can be compacted readily to form a firm, stable subbase.

The subbase material shall conform to the following Grading Requirements

Grading Requirements

Sieve Designation		Mass Percent Passing
Standard, mm	Alternate US Standard	
50	2"	100
25	1"	55 – 85
9.5	3/8"	40 – 75
0.075	No. 200	0 - 12

The fraction passing the 0.075 mm (No. 200) sieve shall not be greater than 0.66 (two thirds) of the fraction passing the 0.425 mm (No. 40) sieve.

The fraction passing the 0.425 mm (No. 40) sieve shall have a liquid limit not greater than 35 and plasticity index not greater than 12 as determined by AASHTO T 89 and T 90, respectively.

The coarse portion, retained on a 2.00 mm (No. 10) sieve, shall have a mass percent of wear not exceeding 50 by the Los Angeles Abrasion Tests as determined by AASHTO T 96.

The material shall have a soaked **CBR value of not less than 25%** as determined by AASHTO T 193. The CBR value shall be obtained at the maximum dry density and determined by AASHTO T 180, Method D.

CONSTRUCTION REQUIREMENTS

PLACING

The aggregate subbase material shall be placed at a uniform mixture on a prepared subgrade in a quantity which will provide the required compacted thickness. When more than one layer is required, each layer shall be shaped and compacted before the succeeding layer is placed.

The placing of material shall begin at the point designated by the Engineer. Placing shall be from vehicles especially equipped to distribute the material in a continuous uniform layer or windrow. The layer or windrow shall be of such size that when spread and compacted the finished layer be in reasonably close conformity to the nominal thickness shown on the Plans.

When hauling is done over previously placed material, hauling equipment shall be dispersed uniformly over the entire surface of the previously constructed layer, to minimize rutting or uneven compaction.

SPREADING AND COMPACTING

When uniformly mixed, the mixture shall be spread to the plan thickness, for compaction.

Where the required thickness is 150mm or less, the material may be spread and compacted in one layer. Where the required thickness is more than 150 mm, the aggregate base shall be spread and compacted in two or more layers of approximately equal thickness, and the maximum compacted thickness of any layer shall not exceed 150 mm. All subsequent layers shall be spread and compacted in a similar manner.

The moisture content of sub-base material shall, if necessary, be adjusted prior to compaction by watering with approved sprinklers mounted on trucks or by drying out, as required in order to obtain the required compaction.

Immediately following final spreading and smoothening, each layer shall be compacted to the full width by means of approved compaction equipment. Rolling shall progress gradually from the sides to the center, parallel to the centerline of the road and shall continue until the whole surface has been rolled. Any irregularities or depressions that develop shall be corrected by loosening the material at these places and adding or removing material until surface is smooth and uniform. Along curbs, headers, and walls, and at all places not accessible to the roller, the base material shall be compacted thoroughly with approved tampers or compactors.

If the layer of base material, or part thereof, does not conform to the required finish, the Contractor shall, at his own expense, make the necessary corrections.

Compaction of each layer shall continue until a **field density of at least 100 percent** of the maximum dry density determined in accordance with AASHTO T 180, Method D has been achieved. In-place density determination shall be made in accordance with AASHTO T 191/ASTM D 1556.

TRIAL SECTION

Before subbase construction is started, the Contractor shall spread and compact trial sections as directed by the Engineer. The purpose of the trial sections is to check the suitability of the materials and the efficiency of the equipment and construction method which is proposed to be used by the Contractor. Therefore, the Contractor must use the same material, equipment and procedures that he proposes to use for the main work. One trial section of about 500 m^2 shall be made for every type of material and/or construction equipment/procedure proposed for use.

After final compaction of each trial section, the Contractor shall carry out such field density tests and other tests required as directed by the Engineer.

If a trial section shows that the proposed materials, equipment or procedures in the Engineer's opinion are not suitable for subbase, the material shall be removed at the Contractor's expense, and a new trial section shall be constructed.

If the basic conditions regarding the type of material or procedure change during the execution of the work, new trial sections shall be constructed.

SURVEYS AND SETTING OUT WORKS

Before the commencement of the pavement works, the Contractor together with the Engineer shall conduct topographic survey which will form the basis of quantity measurement.

The Contractor shall set out the works and shall be solely responsible for the accuracy of such setting-out.

Prior to placement of any material, the Contractor shall establish visible construction markers to clearly define horizontal limits of the Work.

TOLERANCES

The aggregate base course shall be laid to the designed level and transverse slopes shown on the Plans. The allowable tolerances shall be in accordance with following:

Permitted variation from design THICKNESS OF LAYER	± 20 mm
Permitted variation from design LEVEL OF SURFACE	+ 10 mm -20 mm
Permitted SURFACE IRREGULARITY Measured by 3-m straight-edge	20 mm
Permitted variation from design CROSSFALL OR CAMBER	± 0.3%
Permitted variation from design LONGITUDINAL GRADE over 25 m in length	± 0.1%

METHOD OF MEASUREMENT

Aggregate Subbase Course will be measured by the cubic meter (m3). The quantity to be paid for shall be the design volume compacted in-place as shown on the Plans, 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.

ITEM 13 : AGGREGATE BASE COURSE

DESCRIPTION

This Item shall consist of furnishing, placing and compacting an aggregate base course on a prepared subgrade/subbase in accordance with this Specification and the lines, grades, thickness and typical cross-sections shown on the Plans, or as established by the Engineer.

MATERIAL REQUIREMENTS

Aggregate for base course shall consist of hard, durable particles or fragments of crushed stone, crushed slag or crushed or natural gravel and filler of natural or crushed sand or other finely divided mineral matter. The composite material shall be free from vegetable matter and lumps or balls of clay, and shall be of such nature that it can be compacted readily to form a firm, stable base.

In some areas where the conventional base course materials are scarce or non-available, the use of 40% weathered limestone blended with 60% crushed stones or gravel shall be allowed, provided that the blended materials meet the requirements of this Item.

The base course material shall conform to the following Grading Requirements

Grading Requirements

Sieve Designation		Mass Percent Passing	
Standard mm	Alternate US Standard	Grading A	Grading B
50	2"	100	
37.5	1 – 1/2"	-	100
25.0	1"	60 - 85	-
19.0	3/4"	-	60 - 85
12.5	1/2"	35 - 65	-
4.75	No. 4	20 - 50	30 - 55
0.425	No. 40	5 - 20	8 - 25
0.075	No. 200	0 - 12	2 - 14

The fraction passing the 0.075 mm (No. 200) sieve shall not be greater than 0.66 (two thirds) of the fraction passing the 0.425 mm (No. 40) sieve.

The fraction passing the 0.425 mm (No. 40) sieve shall have a liquid limit not greater than 25 and plasticity index not greater than 6 as determined by AASHTO T 89 and T 90, respectively.

The coarse portion, retained on a 2.00 mm (No. 10) sieve shall have a mass percent of wear not exceeding 50 by the Los Angeles Abrasion test determined by AASHTO T 96.

The material passing the 19 mm (3/4 inch) sieve shall have a soaked **CBR value** of not less than **80%** as determined by AASHTO T 193. The CBR value shall be obtained at the maximum dry density (MDD) as determined by AASHTO T 180, Method D.

If filler, in addition to that naturally present, is necessary for meeting the grading requirements or for satisfactory bonding, it shall be uniformly blended with the base course material on the road or in a pug mill unless otherwise specified or approved. Filler shall be taken from sources approved by the Engineer, shall be free from hard lumps and shall not contain more than 15 percent of material retained on the 4.75 mm (No. 4) sieve.

CONSTRUCTION REQUIREMENTS

PLACING

The aggregate base material shall be placed at a uniform mixture on a prepared sub-base/ subgrade in a quantity which will provide the required compacted thickness. When more than one layer is required, each layer shall be shaped and compacted before the succeeding layer is placed.

The placing of material shall begin at the point designated by the Engineer. Placing shall be from vehicles especially equipped to distribute the material in a continuous uniform layer or windrow.

The layer or windrow shall be of such size that when spread and compacted the finished layer be in reasonably close conformity to the nominal thickness shown on the Plans.

When hauling is done over previously placed material, hauling equipment shall be dispersed uniformly over the entire surface of the previously constructed layer, to minimize rutting or uneven compaction.

SPREADING AND COMPACTING

When uniformly mixed, the mixture shall be spread to the plan thickness, for compaction.

Where the required thickness is 150mm or less, the material may be spread and compacted in one layer. Where the required thickness is more than 150 mm, the aggregate base shall be spread and compacted in two or more layers of approximately equal thickness, and the maximum compacted thickness of any layer shall not exceed 150 mm. All subsequent layers shall be spread and compacted in a similar manner.

The moisture content of sub-base material shall, if necessary, be adjusted prior to compaction by watering with approved sprinklers mounted on trucks or by drying out, as required in order to obtain the required compaction.

Immediately following final spreading and smoothening, each layer shall be compacted to the full width by means of approved compaction equipment. Rolling shall progress gradually from the sides to the center, parallel to the centerline of the road and shall continue until the whole surface has been rolled. Any irregularities or depressions that develop shall be corrected by loosening the material at these places and adding or removing material until surface is smooth and uniform. Along curbs, headers, and walls, and at all places not accessible to the roller, the base material shall be compacted thoroughly with approved tampers or compactors.
If the layer of base material, or part thereof, does not conform to the required finish, the Contractor shall, at his own expense, make the necessary corrections.

Compaction of each layer shall continue until a **field density of at least 100 percent** of the maximum dry density determined in accordance with AASHTO T 180, Method D has been achieved. In-place density determination shall be made in accordance with AASHTO T 191/ASTM D 1556.

TRIAL SECTION

Before subbase construction is started, the Contractor shall spread and compact trial sections as directed by the Engineer. The purpose of the trial sections is to check the suitability of the materials and the efficiency of the equipment and construction method which is proposed to be used by the Contractor. Therefore, the Contractor must use the same material, equipment and procedures that he proposes to use for the main work. One trial section of about 500 m^2 shall be made for every type of material and/or construction equipment/procedure proposed for use.

After final compaction of each trial section, the Contractor shall carry out such field density tests and other tests required as directed by the Engineer.

If a trial section shows that the proposed materials, equipment or procedures in the Engineer's opinion are not suitable for subbase, the material shall be removed at the Contractor's expense, and a new trial section shall be constructed.

If the basic conditions regarding the type of material or procedure change during the execution of the work, new trial sections shall be constructed.

SURVEYS AND SETTING OUT WORKS

Before the commencement of the pavement works, the Contractor together with the Engineer shall conduct topographic survey which will form the basis of quantity measurement.

The Contractor shall set out the works and shall be solely responsible for the accuracy of such setting-out.

Prior to placement of any material, the Contractor shall establish visible construction markers to clearly define horizontal limits of the Work.

TOLERANCES

The aggregate base course shall be laid to the designed level and transverse slopes shown on the Plans. The allowable tolerances shall be in accordance with following:

Permitted variation from design THICKNESS OF LAYER	± 10 mm
Permitted variation from design LEVEL OF SURFACE	+ 5 mm -10 mm
Permitted SURFACE IRREGULARITY Measured by 3-m straight-edge	5 mm
Permitted variation from design CROSSFALL OR CAMBER	± 0.2%
Permitted variation from design LONGITUDINAL GRADE over 25 m in length	± 0.1%

METHOD OF MEASUREMENT

Aggregate Base Course will be measured by the cubic meter (m3). The quantity to be paid for shall be the design volume compacted in-place as shown on the Plans, and accepted in the completed base course. No allowance 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.

ITEM 14 : PORTLAND CEMENT CONCRETE PAVEMENT

SCOPE OF WORK

The works include the furnishing of all labor, materials and equipment required for the construction of gravel base course and concrete pavement. The works shall be in accordance with the lines and grades shown on the Drawings and in conformity with the Specifications.

MATERIAL REQUIREMENTS

Cement

Portland cement shall conform to the requirements of the Section "Reinforced Concrete".

Fine Aggregate

The fine aggregate shall be well-graded from coarse to fine and shall conform to the requirements of the Section "Reinforced Concrete".

Coarse Aggregate

Coarse aggregate shall conform to the requirements of the Section "Reinforced Concrete".

Water

Clean, fresh, potable water shall be used for the mixing of all concrete and mortar and shall be from a source approved by the Engineer. Sea water or brackish water shall not be used.

Admixture

Admixture shall only be used with the written permission of the Engineer. If air-entraining agents, water reducing agents, set retarders or strength accelerators are permitted to be used, they shall not be used in greater dosages than those recommended by the manufacturer, or as permitted by the Engineer. The cost shall be considered as already in the Contractor's unit cost bid for concrete.

TIE BARS AND SLIP BARS

Tie bars shall be deformed bars conforming to the requirements specified in AASHTO M 31 or M 42, except that rail steel shall not be used for tie bars that are to be bent and re-straightened during construction, sizes as indicated on the Drawings. The deformed bars shall be Grade 40 and shall be shipped in standard bundles, tagged and marked in accordance with the Code of Standard practice of the Concrete Reinforcement Steel Institute.

Slip bars shall be smooth round steel bars conforming to the requirements specified in AASHTO M 31 or plain M 42.

Joint Filler

Poured filler for joint shall conform to the requirements of AASHTO M173.

EXECUTION

Concrete Class

The concrete for pavement shall satisfy the following requirements:

Minimum 28-day comprehensive strength	:	24 MPa
Minimum Flexural Strength	:	3.8 MPa
Maximum Aggregate size	:	25 mm
Maximum water cement ratio	:	0.52

Proportioning, Consistency and Mixing of Concrete

The proportioning, consistency and mixing of concrete shall conform to the requirements of the Section "Reinforced Concrete".

Preparation

The base shall be watered and thoroughly moistened prior to placing of the concrete.

Formwork Construction

Formwork shall comply with the requirements of the Section "Reinforced Concrete". Forms shall be of steel, of an approved section and shall be straight and of a depth equal to thickness of the pavement at the edge. The base of the forms shall be of sufficient width to provide necessary stability in all directions. The flange braces must extend outward on the base not less than 2/3 the height of the form.

All forms shall be rigidly supported on a bed of thoroughly compacted material during the entire operation of placing and finishing the concrete. They shall be set with their faces vertical so as to produce a surface complying with the required tolerance.

Adjacent lanes may be used in lieu of forms for supporting finishing equipment provided that proper protection is afforded to the concrete of the adjacent lanes to prevent damage, and provided further that the surface of the concrete carrying the finishing equipment does not vary by more than 3mm in each meter length. Adjacent lanes in lieu of forms may not be used until the concrete is at least seven (7) days old. Flanged wheels of the finishing equipment shall not be operated on the concrete surface. The inside edge of supporting wheels of the finishing machine shall not operate closer than 100mm from the edge of the concrete lane.

Alternative to placing forms, slip-forming may be used. Slip-form paving equipment shall be equipped with the traveling side forms of sufficient dimensions, shape and strength to support the concrete laterally for a sufficient length of time during placement to produce pavement of the required cross section. No abrupt changes in longitudinal alignment of the pavement will be permitted. The horizontal deviation shall not exceed 20mm from the proper alignment established by the Engineer.

Joints

All joints, longitudinal, transverse, etc., shall be constructed as shown on the Drawings and shall be clean and free of all foreign material after completion of shoulder work prior to acceptance of the work and in accordance with the following provisions:

Longitudinal and Transverse Contact Joints:

Longitudinal contact joints are joints formed between lanes that are poured separately. Transverse contact joints are joints formed between segments of a lane that are poured separately. Transverse contact joints shall be formed perpendicular to pavement centerline at the end of each day of concrete placing, or where concreting has been stopped for 30 minutes or longer but not nearer than 1.5 meters from sawed contraction joints. All contact joints shall have faces perpendicular to the surface of the pavement. Tie bars of the size, length and spacing shown on the Drawings shall be placed across longitudinal and transverse contact joints.

Placing Concrete

The concrete shall be deposited and spread in order that segregation will not occur and place a uniform layer of concrete whose thickness is approximately 20 mm greater than that required for the finished pavement is placed. Rakes shall not be used for handling concrete.

In order to prevent the introduction into the concrete of earth and other foreign materials, the men whose duties require them to work in the concrete, shall in general, confine their movements to the area already covered with fresh concrete. Whenever it becomes necessary for these men to step out of the concrete, their footwear shall be washed or otherwise thoroughly cleaned before returning to the concrete. Repeated carelessness with regard to this detail will be deemed sufficient cause for removing and replacing such worker.

During the operation of striking off the concrete, a uniform ridge of concrete at least 70 mm in height shall be maintained ahead of the strike-off screed for its entire length. Except when making a construction joint, the finishing machine shall at no time be operated beyond that point where this surplus can be maintained in front of the strike-off screed.

After the first operation of the finishing machine, additional concrete shall be added to all low places and honeycombed spots and the concrete rescreeded. In any rescreeding, a uniform head of concrete shall be maintained ahead of the strike-off for its entire length. Honeycombed spots shall not be eliminated by tamping or grouting.

Workers on the job shall have mobile footbridges at their disposal so that they need not walk on the wet concrete.

In conjunction with the placing and spreading, the concrete shall be thoroughly spaded and vibrated along the forms, bulkhead, and joints.

The internal vibrators shall be of pneumatic, gas-driven, or electric type, and shall operate at a frequency of not less than 3,200 pulsations per minute.

Whenever the placing of the concrete is stopped or suspended for any reason, for a period of 30 minutes or longer, a suitable bulkhead shall be placed so as to produce a vertical transverse joint. If an emergency stop occurs within 2.5 meters of the contraction or an expansion joint the concrete shall be removed back to the joint. When the placing of the concrete is resumed, the bulkhead shall be removed and a new concrete placed and

vibrated evenly and solidly against the face of previously deposited concrete. Any concrete in excess of the amount needed to complete a given section or that has been deposited outside the forms shall not be used in the work.

The Contractor shall provide suitable equipment for protecting the fresh concrete in case of rain, such as screens which will cause the rain water to run off beyond the edges of the paving, rain proof tarpaulins or other methods approved by the Engineer. The equipment shall be sufficient to shelter from rain all areas equal to that paved in two hours of work.

Finishing Concrete

The concrete shall be compacted and finished by a mechanical, self-propelled finishing machine of approved type, having two independently operated screeds. If a machine possessing only one screed is approved, the screed will not be less than 450 mm wide and shall be equipped with compensating springs to minimize the effect of the momentum of the screed on the side forms. The number of driving wheels, the weight of the machine and the power of the motor shall be so coordinated as to prevent slippage. The top of the forms and the surface of the finishing machine wheels shall be kept free from concrete or dirt.

The machine shall at all times be in first-class mechanical condition and shall be capable of compacting and finishing the concrete are herein described. Any machine which causes displacement of the side forms from the line or grade to which they have been properly set, or causes undue delay due to mechanical difficulties, shall be removed from the work and replaced by a machine meeting the Specifications.

The finishing machine shall be operated over each section of pavement two or more times and at such intervals as will produce the desired results. Generally, two passes of the finishing machine are considered the maximum desirable.

The concrete shall be vibrated, compacted, and finished by a vibratory finishing machine. The vibratory machine shall meet the requirements for ordinary finishing, and shall be one of the following type:

1. The machine shall have two independently operated screeds; the front screed shall be equipped with vibratory units with a frequency of not less than 3,500 pulsations per minute. There shall be not less than one vibratory unit for each 2.5 meters length or portion thereof, of vibratory screed surface. The front screed shall not be less than 300mm wide and shall be equipped with a "bull nose" front edge built on a radius of not less than 50mm. This type of vibratory finishing machine shall be operated in such manner that each section of pavement will receive at least one vibratory pass, but not more than two passes, unless otherwise directed, or ;

2. The machine shall be equipped with an independently operated vibratory "pan" (or pans) and two (2) independently operated screeds, the "pan" shall be mounted in a manner that will permit it to come in contact with the forms and will permit vibration of the full width of lane simultaneously.

   There shall be not less than one vibratory unit for each 2 m. length or portion thereof, of vibrating pan surface. The vibratory units in any individual pan shall be synchronized and have a frequency of not less than 3,500 pulsations per minute. The front screed shall be capable of operating in a position that will strike off the concrete at a sufficient height above the top of the forms to allow for proper compaction with the vibrating pan. This type of vibratory finishing machine shall be operated in such manner than each section of pavement will receive at least one vibratory pass but not more than two passes, unless otherwise directed.

After the final pass of the finishing machine and when the concrete has started to dry, the surface of the pavement shall be finished with an approved longitudinal float. The float may be operated either manually or by mechanical means. The float may be either of wood or metal shall be straight and smooth and light in weight so as not to displace or sink into the concrete surface.

To be effective, the float shall be at least 300mm wide and 3m long. When manually operated, the float shall be moved from edge to edge with a wiping motion and advance one (1) meter or more.

The succeeding trip shall overlap the previous trip. A light smoothing lute at least 3 meters long may be used provided approved by the Engineer.

The surface of the pavement shall be tested by the Contractor, before the final belting, with an approved standard straightedge 3 meter in length. Irregularities so detected shall be corrected immediately. Special attention shall be given to the concrete adjacent to transverse joints to insure that the edges thereof are not above the grade specified or the adjacent concrete below grade. All depressions or projections shall be corrected before any initial set has developed in the concrete.

After the concrete has been brought to the required grade, contour and smoothness, it shall be finished by passing over the concrete a drag of one or two burlap clothes, which give the surface the required roughness. The vehicles used to carry these cloths may be independent of the concrete-laying machine or may be incorporated with it and may be operated either by hand or mechanically.

Hand finishing will be permitted only on variable width sections of the pavement and other places where the use of the finishing machine would be impractical. Hand finishing shall be accomplished by means of the hand-operated strike-off template of either steel or steel-shod wood construction. The striking template shall be operated forward with a combined longitudinal and transverse motion and shall be so manipulated that neither end will be raised off the side forms. A similar tamper shall be used for tamping the concrete.

As soon as the concrete has attained its initial set, the edges of the pavement, the longitudinal joints, the construction dummy and expansion joints not sawn shall be carefully finished with an edging tool having radius of at least 5mm. The tools, the special accessories for cutting impressed joints and methods of workmanship shall be such as will produce a joint whose edges are of the same quality of concrete as the other portion of the pavement. Methods and workmanship which make use of excess mortar or grout in this area shall be eliminated. Unnecessary tool marks shall be eliminated during work, and the edges left smooth and true to line.

Striking Forms

Forms shall remain in place at least 12 hours after the concrete has been placed. When working conditions are such that the early strength gain of the concrete is delayed, the forms shall remain in place for a longer period, as directed by the Engineer. Bars or heavy load shall not be used against the concrete when still in the forms. Any damage to concrete resulting from form removal shall be repaired promptly by the Contractor as directed by the Engineer without any additional payment to the Contractor.

Curing Concrete

Unless otherwise ordered by the Engineer, curing of concrete shall be done by any method specified in the Section "Reinforced Concrete".

Cleaning and Sealing Joints

After completion of the required curing and before opening of the pavement to traffic, all joints shall be thoroughly cleaned of all concrete aggregate fragments or other materials.

After removal of side forms, the ends at transverse expansion joints at the edges of the pavement shall be carefully cleaned of any concrete within the expansion spaces for the entire depth of slab, care being taken not to injure the ends of the joints. Expansion and contraction joints shall then be poured with a hot joint sealer to the depth as indicated on the Drawings. Joint sealer shall be poured using approved hand pouring pots, with liquid at a temperature not less than that recommended by the approved manufacturer.

Opening to Traffic

The pavement shall be closed to traffic, including the vehicles of the Contractor, for a period of 10 days after the concrete is placed or longer if in the opinion of the Engineer, the weather conditions make it necessary to extend this time. The Contractor shall furnish, place and maintain satisfactory barricades and lights as directed, to exclude all traffic from the pavement.

Any damage to the pavement due to traffic shall be repaired or replaced at the expense of the Contractor. Paving mixers, mechanical concrete spreaders and finishers and other heavy paving equipment shall not be operated on completed concrete lanes in order to construct alternate lanes until after the regular curing period is completed. Even then, planks shall be laid on the finished pavement or other precautions taken to prevent damage to the concrete pavement.

Pavement Smoothness, Thickness and Tolerance

Portland cement concrete pavement shall be constructed to the designed level and transverse slope shown on the Drawing. The allowable tolerance shall be as listed hereunder:

1.	Permitted variation from design thickness of layer	+ - 5mm
2.	Permitted variation from design level of surface	+ - 5mm

The thickness of the pavement will be determined by measurement of cores from the completed pavement in accordance with AASHTO T 148.

The completed pavement shall be accepted on a lot basis. A lot shall be considered as 2,500 sq.m of pavement. The last unit in each slab constitutes a lot in itself when its length is at least ½ of the normal lot length. If the length of the last unit is shorter than ½ of the normal lot length, it shall be included in the previous lot.

Other areas such as intersections, entrances, crossovers, ramp, etc., will be grouped together to form a lot. Small irregular areas may be included with other unit areas to form a lot.

ITEM 15 : PROJECT BILLBOARD

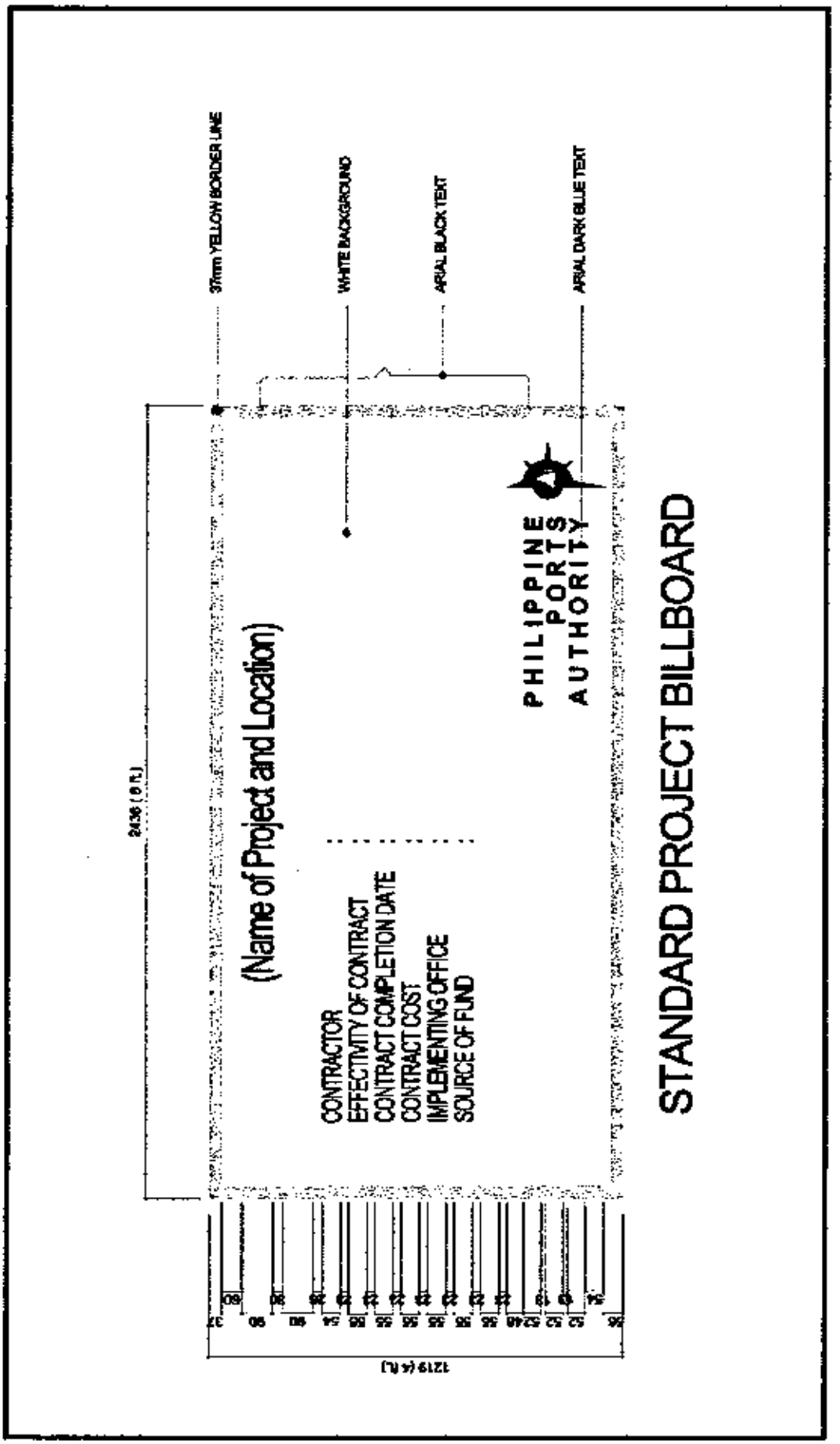
SPECIFICATION

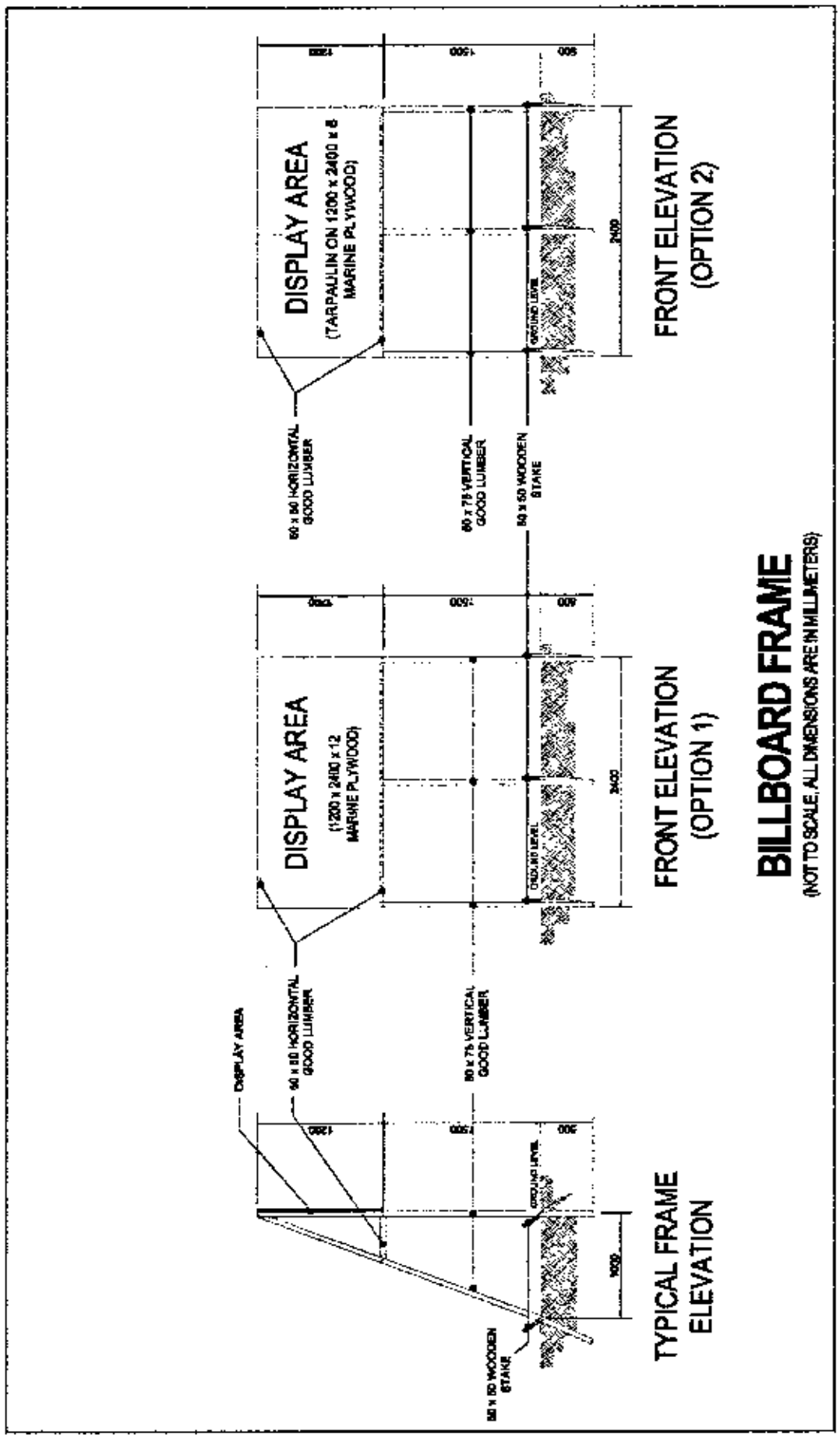
The Project Billboard shall be installed at location(s) designated by the Engineer.

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.


STANDARD PROJECT BILLBOARD
PHILIPPINE PORTS AUTHORITY
(Name of Project and Location)
CONTRACTOR
EFFECTIVITY OF CONTRACT
CONTRACT COMPLETION DATE
CONTRACT COST
IMPLEMENTING OFFICE
SOURCE OF FUND
37mm YELLOW BORDER LINE
WHITE BACKGROUND
ARIAL BLACK TEXT
ARIAL DARK BLUE TEXT
2438 (8 ft.)
1219 (4 ft.)


BILLBOARD FRAME
(NOT TO SCALE, ALL DIMENSIONS ARE IN MILLIMETERS)
FRONT ELEVATION
(OPTION 2)
DISPLAY AREA
(TARPAULIN ON 1200 x 2400 x 6
MARINE PLYWOOD)
50 x 50 HORIZONTAL
GOOD LUMBER
50 x 75 VERTICAL
GOOD LUMBER
50 x 50 WOODEN
STAKE
GROUND LEVEL
2400
FRONT ELEVATION
(OPTION 1)
DISPLAY AREA
(1200 x 2400 x 12
MARINE PLYWOOD)
50 x 50 HORIZONTAL
GOOD LUMBER
50 x 75 VERTICAL
GOOD LUMBER
GROUND LEVEL
2400
TYPICAL FRAME
ELEVATION
DISPLAY AREA
50 x 50 HORIZONTAL
GOOD LUMBER
50 x 75 VERTICAL
GOOD LUMBER
GROUND LEVEL
1000
50 x 50 WOODEN
STAKE


"To all our contractors, suppliers, and service providers, all we ask is for you to
SPEED UP
your contracts and FINISH
AHEAD of schedule,
WITHOUT SACRIFICING
QUALITY
of work, and REASONABLENESS
OF COST agreed upon. Gawin niyo
'yan at hindi tayo maghihiwalay ng
landas (Do that and we will not part ways)."
A Message from
DOTr Secretary Arthur Tugade
@DOTrPH
@DOTrPH
www.dotr.gov.ph

ITEM 16 : 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.

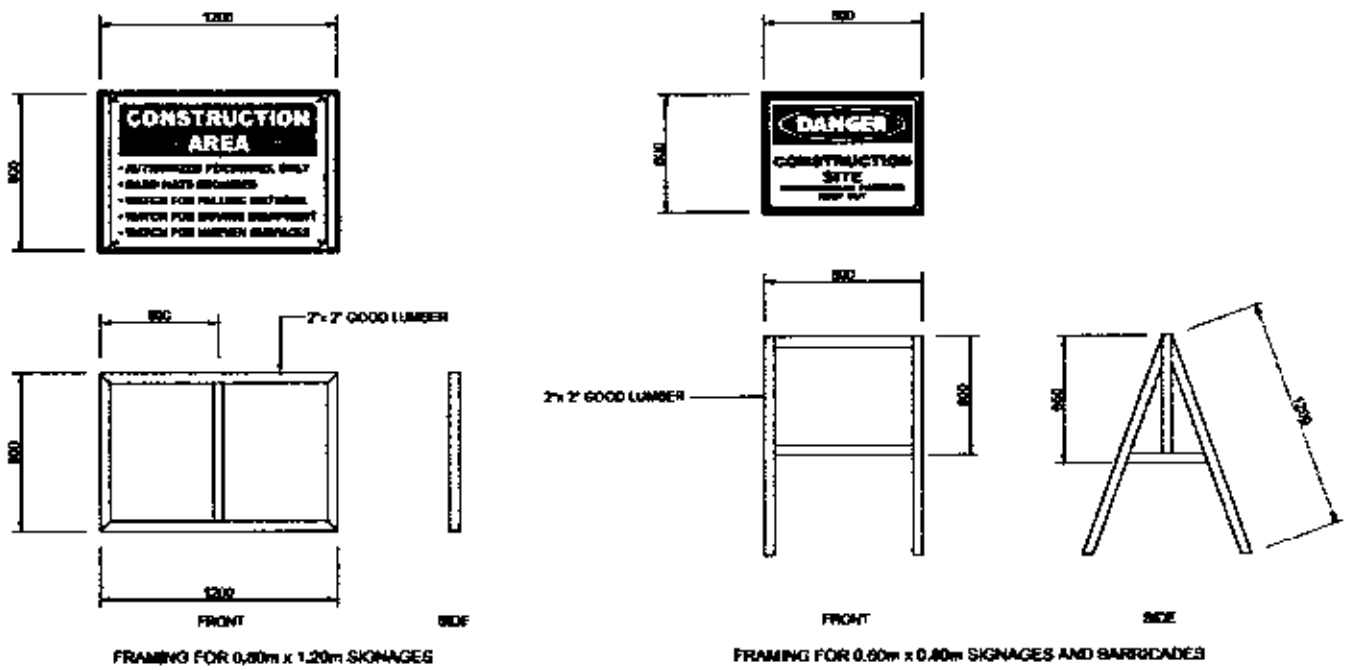
SPECIFICATION

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.



STANDARD PLAN FOR SIGNAGES AND BARRICADES

SECTION VII

DRAWINGS
(APPROVED PLANS)

SECTION VII

DRAWINGS AND APPROVED PLANS
(SEE ISSUED APPROVED PLANS)

LIST OF DRAWINGS:

1 OF 13	DEVELOPMENT PLAN, VICINITY MAP, GENERAL NOTES, DESIGN PARAMETERS
2 OF 13	LAYOUT OF EXISTING STRUCTURES TO BE AFFECTED, LAYOUT OF EXISTING PILES
3 OF 13	GENERAL PLAN FOR RC PIER REHABILITATION AND EXTENSION, PILING PLAN FOR THE RC PIER REHABILITATION AND EXTENSION
4 OF 13	SECTION A, SECTION B, SECTION C & OFF-SHORE ELEVATION
5 OF 13	SECTION D, SECTION E
6 OF 13	TRANSVERSE BEAM REINFORCEMENT @ 12.00M & TYPICAL LONGITUDINAL BEAM REINFORCEMENT
7 OF 13	SECTION OF TRANSVERSE BEAM, SECTION OF TRANSVERSE BEAM SECTION OF TRANSVERSE BEAM, SECTION OF LONGITUDINAL CANTILEVER BEAM, CURTAIN WALL-1 & 2, DETAIL OF PILE CAP FOR COUPLE BATTER PILES AND DETAIL OF PILE CAP FOR VERTICAL PILES
8 OF 13	TYPICAL SLAB REINFORCEMENT, TYPICAL REINFORCEMENT OF MOORING BLOCK-2, DETAIL OF CONSTRUCTION JOINT AND DETAIL "Y"
9 OF 13	TYPICAL REINFORCEMENT OF FENDER BLOCK, TYPICAL ATTACHMENT OF V - 500H x 2000L RUBBER DOCK FENDER, 35 TON MOORING TEE-HEAD, 35 TON MOORING TEE-HEAD, DETAL OF ANCHOR BOLT, DETAIL OF RUBBER DOCK FENDER V-TYPE 500H x 2000L
10 OF 13	TYPICAL SECTION OF VERTICAL PILES, TYPICAL SECTION OF COUPLE BATTER PILES, DETAILS OF SPLICING FABRICATION & DETAIL OF PILE TIP REINFORCING BAND
11 OF 13	PLAN PROPOSED ROCK CAUSEWAY , SECTION Z
12 OF 13	STATION 0+00M, STATION 0+15M, STATION 0+30M, STATION 0+45M STATION 0+61.80M
13 OF 13	DETAL OF DEFLECTOR WALL, DETAL OF RETAINING WALL-1 , PAVEMENT PLAN FOR ROCK CAUSEWAY , DETAIL OF PAVEMENT JOINTS
ANNEX-1	HYDROGRAPHIC AND TOPOGRAPHIC SURVEY PLAN

SECTION VIII

BILL OF QUANTITIES
and
ATTACHMENTS

BILL OF QUANTITIES
PLARIDEL PORT DEVELOPMENT / IMPROVEMENT PROJECT
Port of Plaridel (Sta In), Quezon

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
BILL NO.	1 GENERAL EXPENSES				
1.01	Mobilization, demobilization and cleaning	lot	1		
1.02	Provide site office and residence for the Engineer and staff	sq.m.	48		
1.03	Maintain temporary site office and residence for the Engineer and staff	mo.	18		
1.04	Provide Construction Safety and Health Program in the execution of the project including stringent Covid-19 protocols per Engineering circular No. 01-2020, and Construction Guidelines for Project Implementation during the period of Public Health Emergency, approved by PDCB and CIAP (as indicated in the Bid Documents)	mo.	18		
	TOTAL FOR BILL NO. 1				

Bidder's Authorized Signature

BILL OF QUANTITIES
PLARIDEL PORT DEVELOPMENT / IMPROVEMENT PROJECT
Port of Plaridel (Sisin), Quezon

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
BILL NO.	2 DEMOLITION AND REMOVAL WORKS				
2.01	Demolish and dispose existing R.C. Deck (slab, beams & pile caps)	sq.m.	1,000		
2.02	Cut and dispose existing R.C. Pile up to elevation +1.00 meters	no.	67		
2.03	Cut and dispose existing R.C. Pile up to seabed elevation	no.	84		
	TOTAL FOR BILL NO. 2				

Bidder's Authorized Signature

BILL OF QUANTITIES
PLARIDEL PORT DEVELOPMENT / IMPROVEMENT PROJECT
Port of Plaridel (Sta In), Quezon

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
BILL NO.	3 ROCK CAUSEWAY				
3.01	Excavate existing seabed up to required elevation	cu.m.	5,170		
3.02	Supply & place 3,500psi concrete for R.C. curb, deflector & retaining walls	cu.m.	205		
3.03	Supply & install steel reinforcement for R.C. curb, deflector & retaining walls	kg.	18,238		
3.04	Supply and place 50-100 kg core rocks	cu.m.	3,291		
3.05	Supply and place 2,000 kg armour rocks	cu.m.	3,272		
3.06	Supply & install geotextile fabric	sq.m.	1,392		
3.07	Supply and place sand & gravel fill	cu.m.	772		
3.08	Supply, spread & compact aggregate sub-base course	cu.m.	719		
3.09	Supply, spread & compact aggregate base course	cu.m.	118		
3.10	Construct portland cement concrete pavement (300mm thk.) including reinforcement	sq.m.	569		
	TOTAL FOR BILL NO. 3				

Bidder's Authorized Signature

BILL OF QUANTITIES
PLARIDEL PORT DEVELOPMENT / IMPROVEMENT PROJECT
Port of Plaridel (Sisin), Quezon

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
BILL NO.	4 R.C. PIER				
4.01	Supply and deliver to site 450mm dia. steel pipe piles (A252 Grade 2)	m.t.	443		
4.02	Supply and apply polyurethane external coating for steel pipe pipes	sq.m.	1,158		
4.03	Supply and install plate reinforcing band tip for the steel pipe piles	no.	91		
4.04	Handle, pitch and drive vertical steel pipe piles	l.m.	2,789		
4.05	Handle, pitch and drive batter steel pipe piles	l.m.	1,404		
4.06	Splice steel pipe piles as directed by the Engineer	no.	162		
4.07	Cutting of newly driven steel pipe piles	no.	91		
4.08	Extraction of clogged materials inside the steel pipe piles	cu.m.	72		
4.09	Supply and place 3,500 psi concrete filler for steel pipe piles	cu.m.	142		
4.10	Supply and install reinforcing steel cage for steel pipe piles	kg.	25,262		
4.11	Supply and place 3,500psi concrete for the superstructure	cu.m.	466		
4.12	Supply & Install steel reinforcement for the superstructure	kg.	72,031		
4.13	Supply and install hot-dipped galvanized angle bar for construction joints including dowel bars	l.m.	24		

Bidder's Authorized Signature

BILL OF QUANTITIES
PLARIDEL PORT DEVELOPMENT / IMPROVEMENT PROJECT
Port of Plaridel (Sta In), Quezon

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
4.14	Supply, deliver to site mooring bollard (35T, T-head) including accessories	set	16		
4.15	Install mooring bollard (35T, T-head) & accessories	set	16		
4.16	Supply, deliver to site rubber dock fender (V500H x 2000L) including accessories	set	16		
4.17	Install rubber dock fender (V500H x 2000L) & accessories	set	16		
	TOTAL FOR BILL NO. 4				

Bidder's Authorized Signature

BILL OF QUANTITIES
PLARIDEL PORT DEVELOPMENT / IMPROVEMENT PROJECT
Port of Plaridel (Sta in), Quezon

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
BILL NO.	5 REIMBURSABLE ITEMS				
5.01	Provide reimbursable items necessary in the implementation of the project as determined by the Authority				
	a) Office furnitures and appliances	lot	1		
	b) Computers and Accessories	lot	1		
	c) Service Vehicle including LTO registration and comprehensive insurance	unit	1		
	TOTAL FOR BILL NO. 5				

Bidder's Authorized Signature

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, demobilization and cleaning

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 site office and residence for the Engineer and staff

The quantity to be paid for shall be the actual provision for temporary site office and residence for the engineer and staff and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary for the provision of temporary site office and residence for the engineer and staff.

Item 1.03 Maintain temporary site office and residence for the Engineer and staff

The quantity to be paid for shall be the actual services rendered in maintaining the site office 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 maintenance of the temporary site office and residence as well as other expenses such as provision for electric power, telephone bill, potable water supply, janitorial and security services.

Item 1.04 Provide construction safety and Health Program in the execution of the project including stringent Covid-19 protocols per PPA Engineering Circular No. 01-2020 and, construction guidelines for the project implementation during the period of public health emergency approved by PDCB and CIAP (as indicated in the bid documents)

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

DEMOLITION AND REMOVAL WORKS

Item 2.01 Demolish and dispose existing RC Deck (slab, beams and pile caps)

The quantity to be paid for shall be the actual area in square meter of existing RC Deck (slab, beams and pile caps) to be demolished and properly disposed 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 2.02 Cut and dispose existing RC pile up to elevation +1.00 meter

The quantity to be paid for shall be the actual number of existing RC Pile to be cut-off up to elevation +1.00 meter including proper disposal of debris 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 2.03 Cut and dispose existing RC pile up to seabed elevation

The quantity to be paid for shall be the actual number of existing RC Pile to be cut-off up to seabed elevation including proper disposal of debris 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. 3

BACK-UP AREA WITH RO-RO RAMP ON-FILL

Item 3.01 Excavate existing seabed up to required elevation

The quantity to be paid for shall be the actual volume in cubic meter of existing seabed to be excavated up to required elevation 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 3.02 Supply and place 3,500 psi concrete for the RC Curb, deflector and retaining walls

The quantity to be paid for shall be the actual volume in cubic meter of 3,500 psi concrete for the RC Curb, deflector and retaining walls, supplied and 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 3.03 Supply, fabricate and install steel reinforcement for the RC Curb, deflector and retaining walls

The quantity to be paid for shall be the actual weight in kilogram of reinforcing steel bars for the RC Curb, deflector and retaining walls, supplied, fabricated and installed 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 3.04 Supply and place 50-100 kg. core rocks

The quantity to be paid for shall be the actual volume in cubic meter of 50-100 kg. core rocks, supplied and 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 3.05 Supply and place 2,000 kg. armour rocks

The quantity to be paid for shall be the actual volume in cubic meter of 2,000 kg. armour rocks, supplied and 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 3.06 Supply and Install geotextile fabric

The quantity to be paid for shall be the actual area in square meter of geotextile fabric, supplied and installed 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 3.07 Supply and place sand and gravel fill

The quantity to be paid for shall be the actual volume in cubic meter of sand and gravel fill, supplied and set-in-place in accordance with the plans and specifications and accepted by the Engineer. Hydrographic/Topographic Surveys before and after placing of sand and gravel fill shall be made to determine the actual elevations along the cross sections and the actual quantities for payment. Volume due to settlement as established using settlement plates shall also be considered for payment. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

Item 3.08 Supply, spread and compact aggregate subbase course

The quantity to be paid for shall be the actual volume in cubic meter of aggregate subbase course to be supplied, spread and compacted 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 3.09 Supply, spread and compact aggregate base course

The quantity to be paid for shall be the actual volume in cubic meter of aggregate base course to be supplied, spread and compacted 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 3.10 Construct Portland cement concrete pavement (300mm thick) including reinforcement

The quantity to be paid for shall be the actual area in square meter of Portland cement concrete pavement (300mm thick) including reinforcement, to be constructed 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. 4

R.C. PIER

Item 4.01 Supply and deliver to site 450mm dia. steel pipe piles (A252 Grade 2)

The quantity to be paid for shall be the actual weight in metric tons of 450mm dia. steel pipe piles (A252 Grade 2), supplied and delivered to site 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 4.02 Supply and apply polyurethane external coating for steel pipe piles

The quantity to be paid for shall be the actual area in square meter of polyurethane external coating, applied on the surface of the steel pipe piles 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 4.03 Supply and install plate reinforcing band tip for steel pipe piles

The quantity to be paid for shall be the actual number of plate reinforcing band tip, supplied and installed 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 4.04 Handle, pitch and drive vertical steel pipe piles

The quantity to be paid for shall be the actual length in linear meter of vertical steel pipe piles, handled, pitched and driven in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

Item 4.05 Handle, pitch and drive batter steel pipe piles

The quantity to be paid for shall be the actual length in linear meter of batter steel pipe piles, handled, pitched and driven in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation and accepted by the Engineers. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

Item 4.06 Splice steel pipe piles as directed by the Engineer

The quantity to be paid for shall be the actual number of steel pipe piles, spliced as directed by 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 4.07 Cutting of newly driven steel pipe piles

The quantity to be paid for shall be the actual number of newly driven steel pipe piles, cut-off up to required elevation, 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 4.08 Extraction of clogged materials inside the steel pipe piles

The quantity to be paid for shall be the actual volume in cubic meter of clogged materials to be extracted from steel pipe piles 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 4.09 Supply and place 3,500 psi concrete filler for steel pipe piles

The quantity to be paid for shall be the actual volume in cubic meter of 3,500 psi concrete filler for steel pipe piles, supplied and 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 4.10 Supply and install reinforcing steel cage for steel pipe piles

The quantity to be paid for shall be the actual weight in kilogram of reinforcing steel cage for steel pipe piles, supplied and installed 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 4.11 Supply and place 3,500 psi concrete for superstructure

The quantity to be paid for shall be the actual volume in cubic meter of 3,500 psi concrete, supplied and 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 4.12 Supply and install steel reinforcement for superstructure

The quantity to be paid for shall be the actual weight in kilogram of reinforcing steel bars, supplied and installed 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 4.13 Supply and install hot-dipped galvanized angle bar for construction joints including dowel bars

The quantity to be paid for shall be the actual length in linear meter of hot-dipped galvanized angle bar for construction joints including dowel bars, to be constructed 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 4.14 Supply and deliver to site mooring bollard (35T, T-head) including accessories

The quantity to be paid for shall be the actual quantity in set of mooring bollard (35T, T-head) including accessories, supplied and delivered to site 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 4.15 Install mooring bollard (35T, T-head) including accessories

The quantity to be paid for shall be the actual quantity in set of mooring bollard (35T, T-head) including accessories, installed 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 4.16 Supply and deliver to site rubber dock fender (V500H x 2000L) including accessories

The quantity to be paid for shall be the actual set of rubber dock fenders (V500H x 2000L) including accessories, supplied and delivered to site 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 4.17 Install rubber dock fenders (V500H x 2000L) including accessories

The quantity to be paid for shall be the actual set of rubber dock fenders (V500H x 2000L) including accessories, installed 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. 5

REIMBURSABLE ITEMS

Item 5.01 Provide reimbursable items necessary in the implementation of the project as determined by the Authority.

a. **Office Furniture and Appliances**

b. **Computer and Accessories**

c. **Service Vehicle including LTO registration and comprehensive insurance**

The quantity to be paid for shall be the actual quantity of determined items by the Authority deemed necessary in the implementation of the project, supplied, delivered and accepted by the Authority. Payment for said items shall be made only upon complete delivery/acceptance of such. The contract lump sum price shall be full compensation for providing all determined items. The Contractor's Profit and Overhead, Contingencies and Miscellaneous (OCM) should not be included in the cost of said items. Claims for payment shall be supported by Official Receipt(s) (OR) and at least three (3) canvasses. The amount to be paid for shall be the price indicated in the OR but should not exceed the contract lump sum price. The determined items shall be the property of PPA. Operation and maintenance shall be borne by PPA.

FACILITIES TO BE PROVIDED FOR THE ENGINEER & HIS STAFF

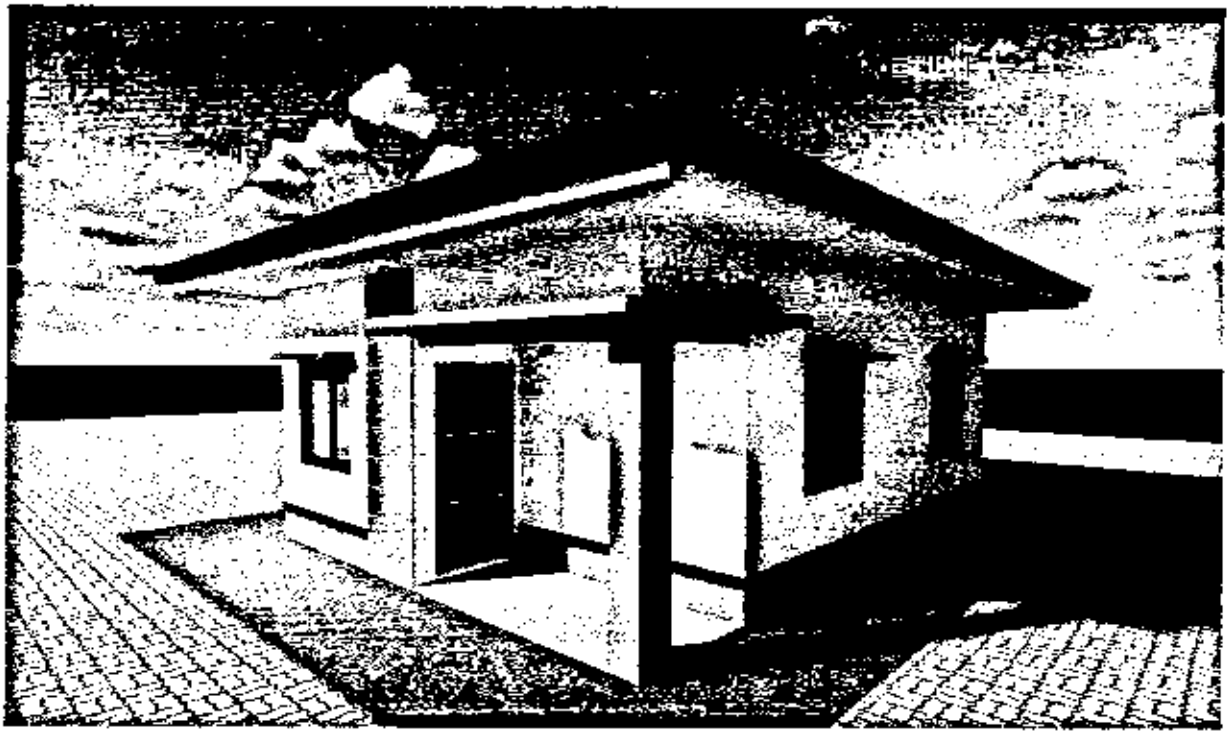
CONSTRUCTION OF SITE OFFICE AND RESIDENCE FOR THE ENGINEER & STAFF

The Contractor shall construct a site office and residence for the Engineer and his staff in accordance with the plans and specifications as indicated hereafter.

Upon completion of the project, the said office will be turned-over to the PMO.

PHILIPPINE PORTS AUTHORITY

PROPOSED FIELD OFFICE



1 / A1 PERSPECTIVE

SCALE NTS

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A - 04 of 04	• SCHEDULE OF DOORS AND WINDOWS • TOILET DETAILS • KITCHEN CABINET DETAILS	
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PHILIPPINE PORTS AUTHORITY

PROJECT TITLE

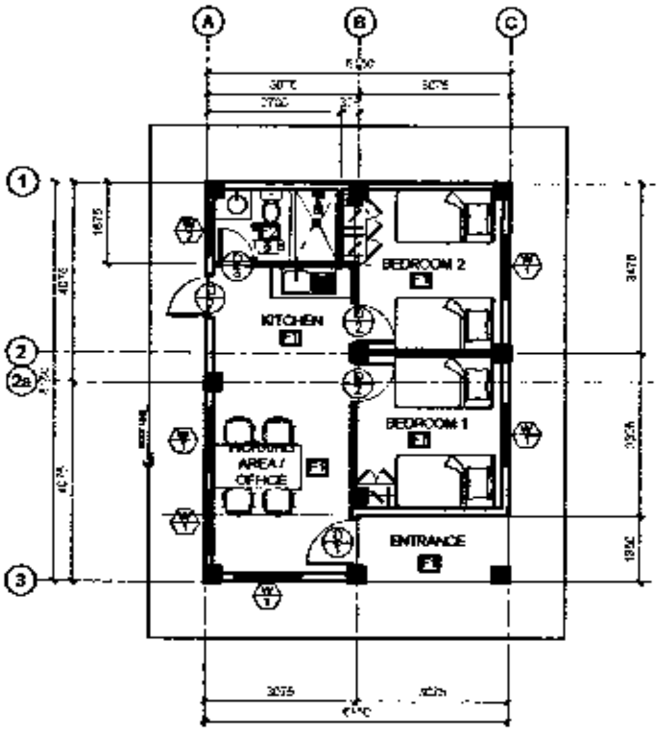
P R O P O S E D F I E L D O F F I C E

SHEET CONTENTS:
- PERSPECTIVE
- TABLE OF CONTENTS

SCALE

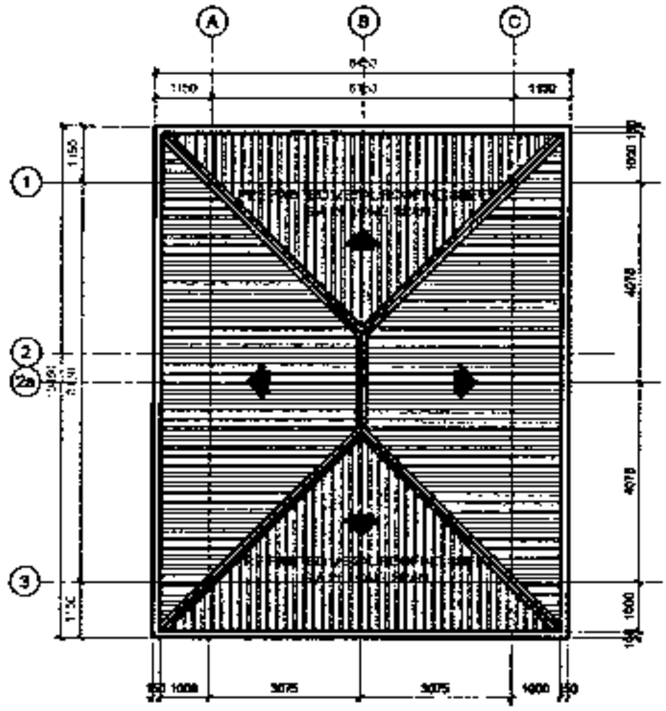
SHEET NO: A-01 of 04

DATE



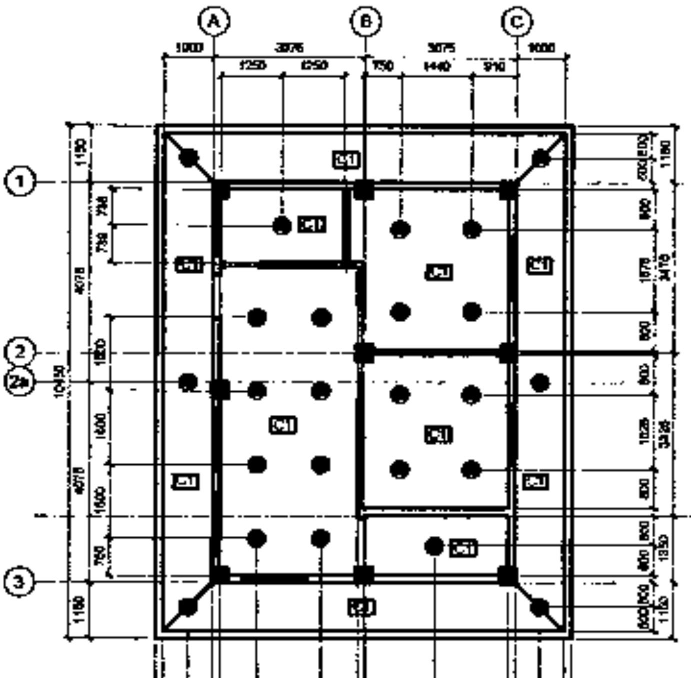
FLOOR PLAN

SCALE 1:100 M



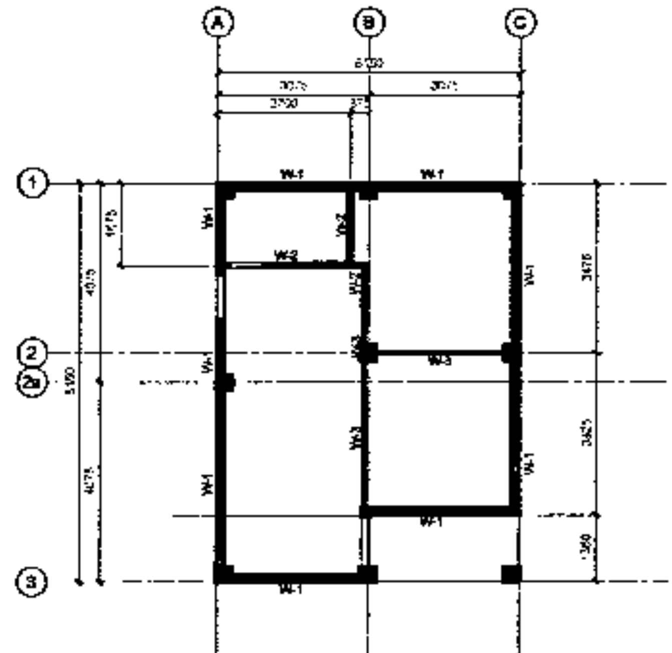
ROOF PLAN

SCALE 1:100 M



REFLECTED CEILING PLAN

SCALE 1:100 M



WALL PARTITION LAYOUT

SCALE 1:100 M

LEGEND:

FLOOR FINISHES		CEILING		WALL PARTITION	
F1	[illegible]	C1	[illegible] C.C. STUDS [illegible]	W-1	[illegible] THK. CHB WALL
F2	[illegible]	●	VERTICAL DOWNLIGHT RECESSED [illegible] LED BULB DAYLIGHT	W-2	[illegible] THK. CHB WALL
				W-3	[illegible] THK. DRYWALL [illegible]

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE:

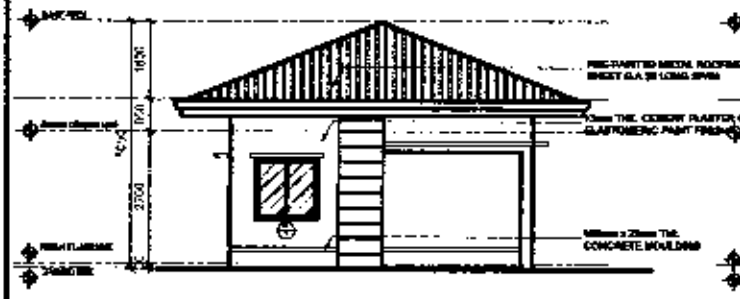
P R O P O S E D F I E L D O F F I C E

SHEET CONTENTS:
- FLOOR PLAN
- ROOF PLAN
- REFLECTED CEILING PLAN
- WALL PARTITION LAYOUT
- LEGEND

SCALE: AS SHOWN

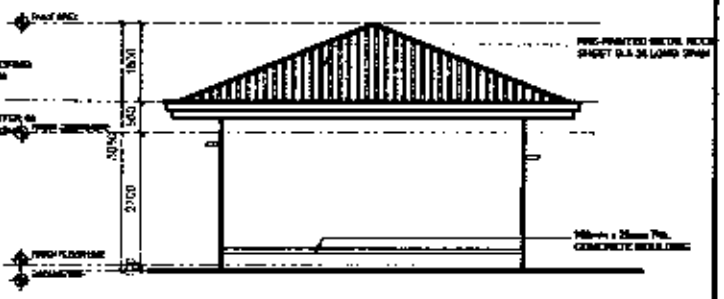
SHEET NO. A-02 of 04

DATE: [illegible]



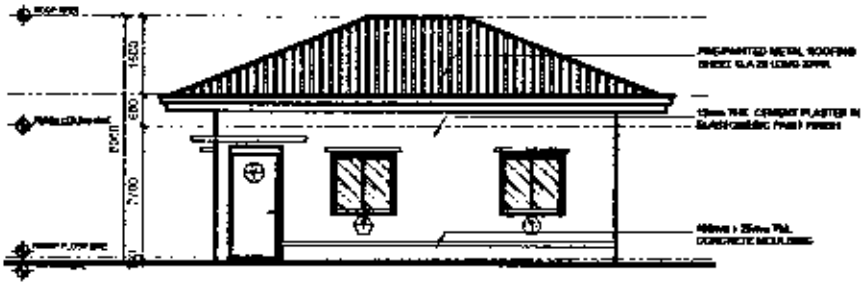
1 FRONT ELEVATION

SCALE 1:150 M



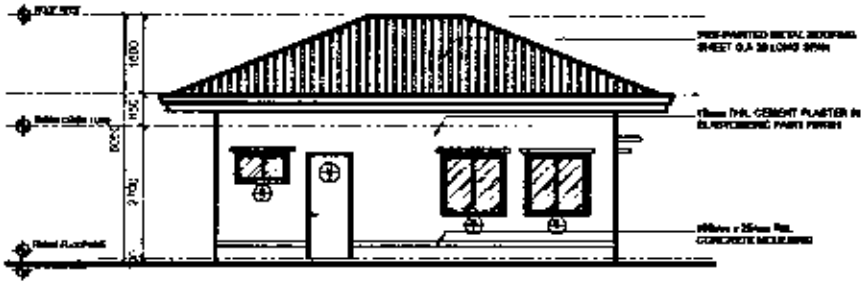
2 REAR ELEVATION

SCALE 1:150 M



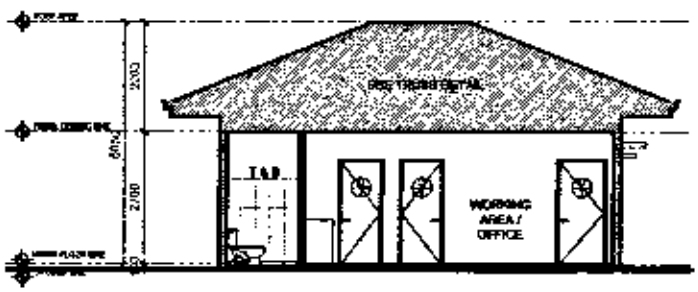
3 RIGHT SIDE ELEVATION

SCALE 1:150 M



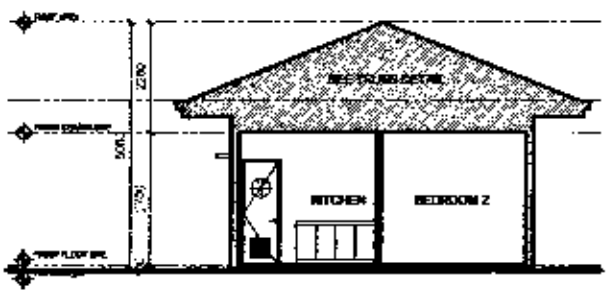
4 LEFT SIDE ELEVATION

SCALE 1:150 M



5 LONGITUDINAL SECTION

SCALE 1:150 M



6 CROSS SECTION

SCALE 1:150 M

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE:

PROPOSED FIELD OFFICE

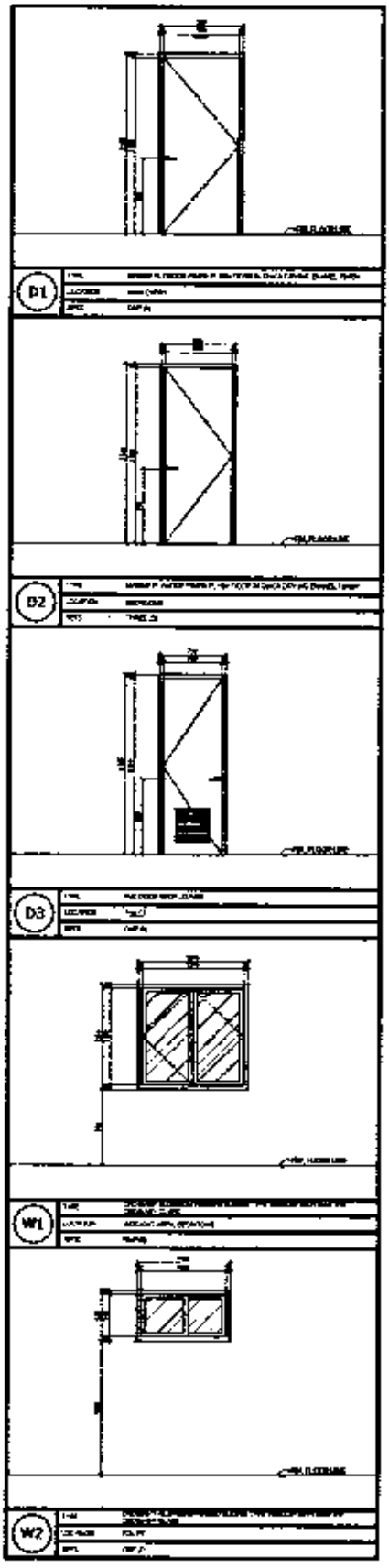
SHEET CONTENTS:

- FRONT ELEVATION
- RIGHT SIDE ELEVATION
- LEFT SIDE ELEVATION
- REAR ELEVATION
- LONGITUDINAL SECTION
- CROSS SECTION
- LEGEND

SCALE: AS SHOWN

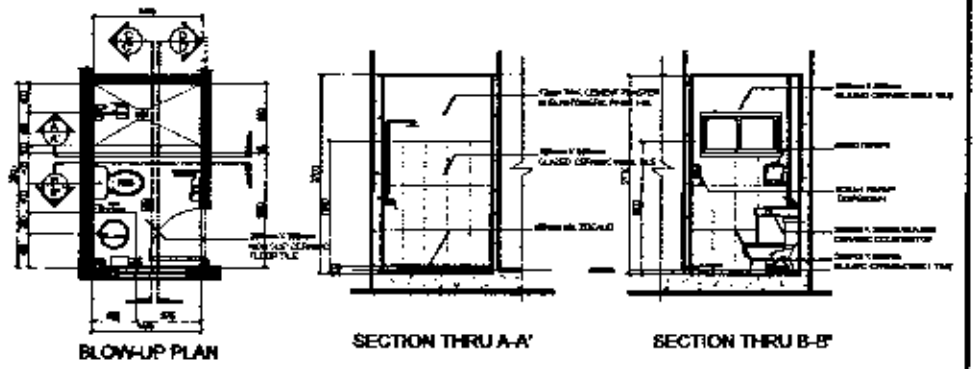
SHEET NO: A-03 of 04

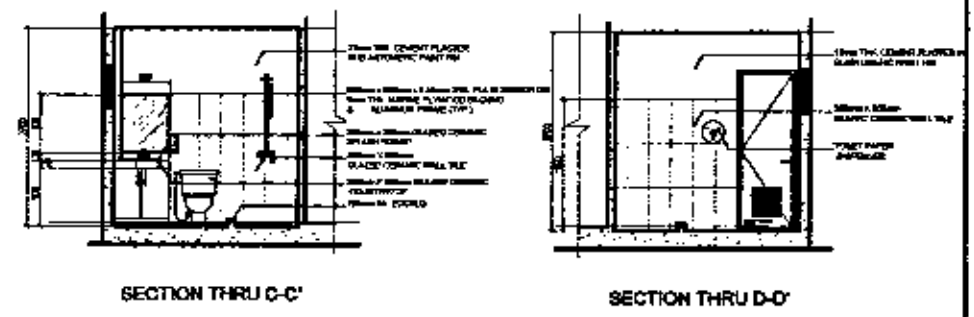
DATE: APRIL 2021



SCHEDULE OF DOORS AND WINDOWS

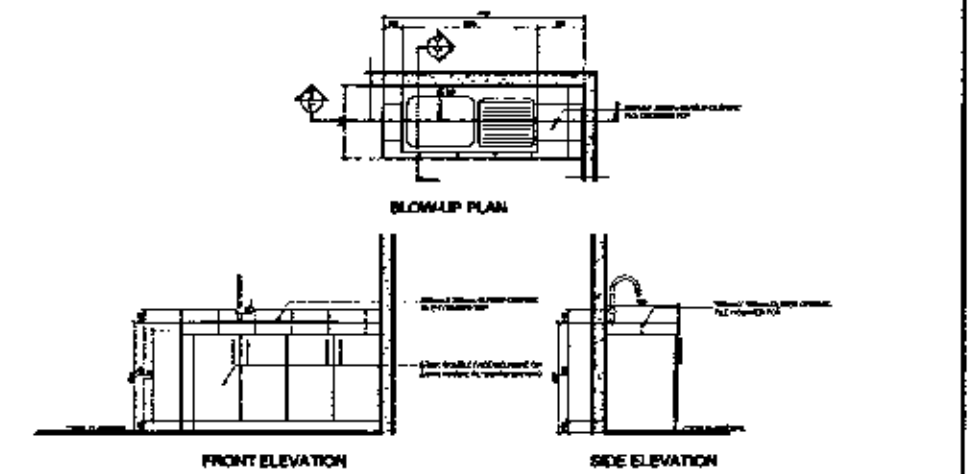
SCALE

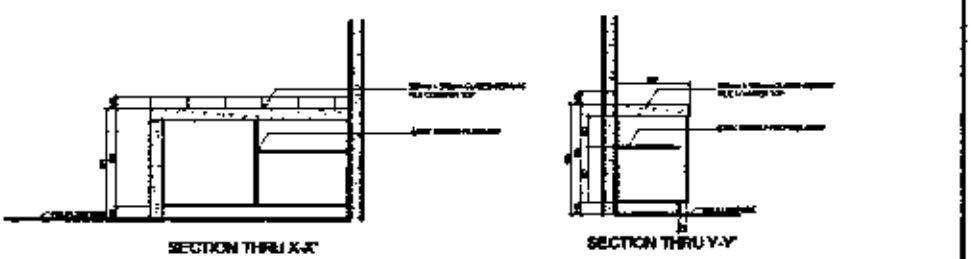




TOILET DETAILS

SCALE 1:100 M





KITCHEN CABINET DETAILS

SCALE

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE

PROPOSED FIELD OFFICE

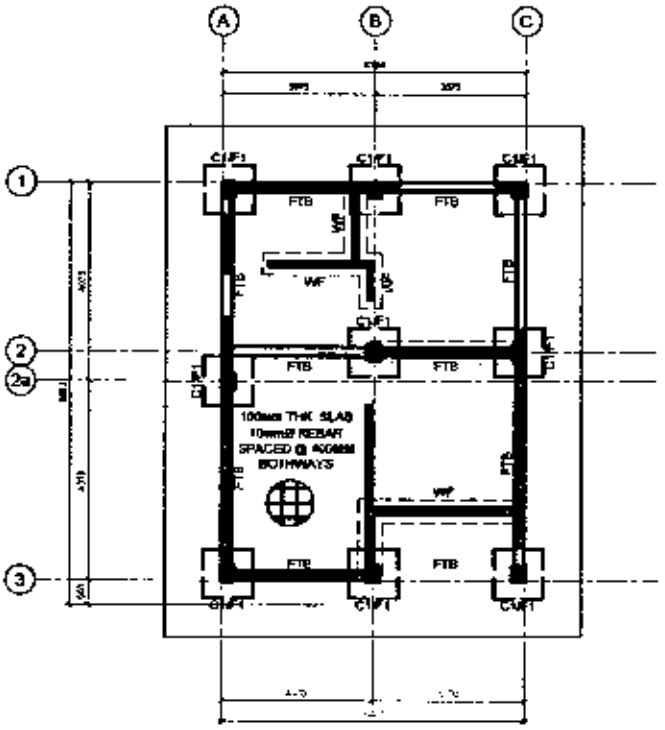
SHEET CONTENTS:

- SCHEDULE OF DOORS AND WINDOWS
- TOILET DETAILS
- KITCHEN CABINET DETAILS

SCALE: AS SHOWN

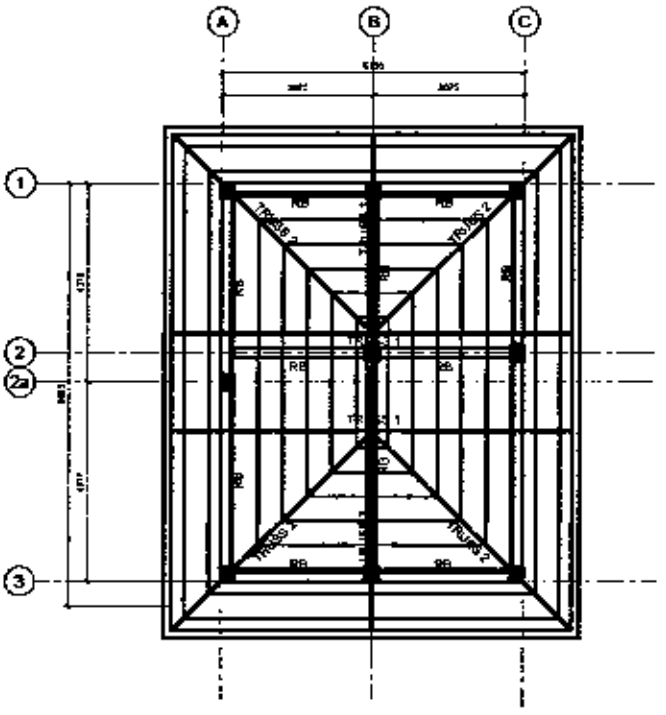
SHEET NO. A-04 of 04

DATE: APRIL 2021



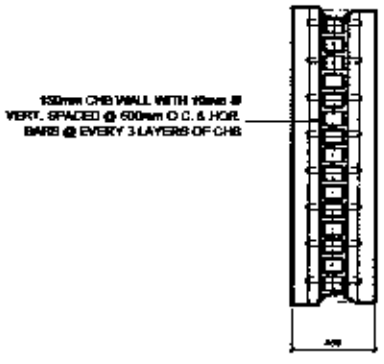
1 S1 FOUNDATION PLAN

SCALE 1:100 M

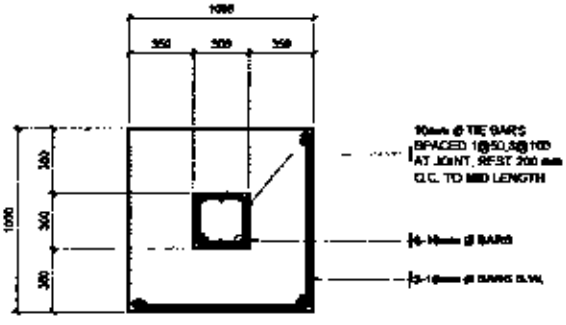


2 S1 ROOF FRAMING PLAN

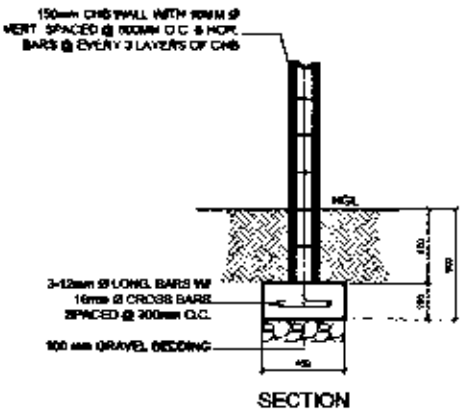
SCALE 1:100 M



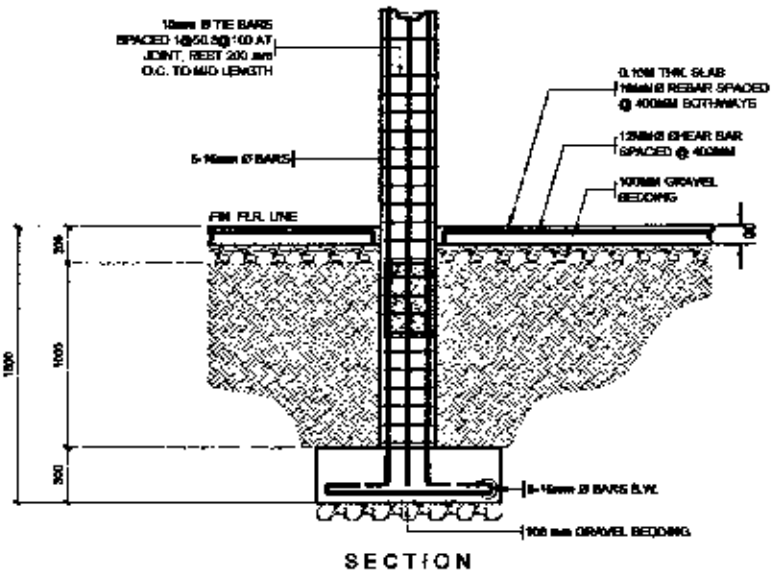
PLAN



PLAN



SECTION



SECTION

3 S1 WALL FOOTING DETAIL

SCALE 1:50 M

4 S1 DETAIL OF COLUMN/COLUMN FOOTING

SCALE 1:20 M

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE:

PROPOSED FIELD OFFICE

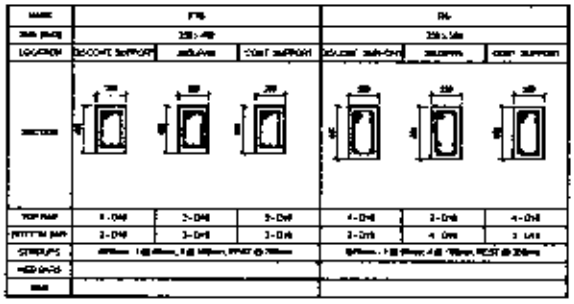
SHEET CONTENTS:

- FOUNDATION PLAN
- ROOF FRAMING PLAN
- WALL FOOTING DETAIL
- DETAIL OF COLUMN/COLUMN FOOTING

SCALE: AS SHOWN

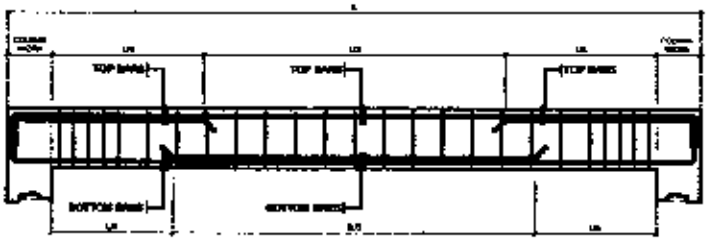
SHEET NO: S-01 of 02

DATE: APRIL 2021



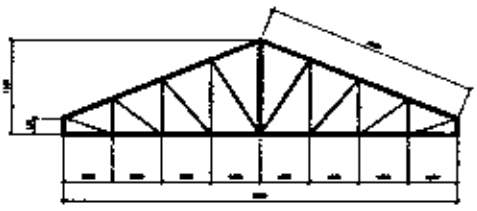
FTB/GIRDER/BEAM SCHEDULE

SCALE

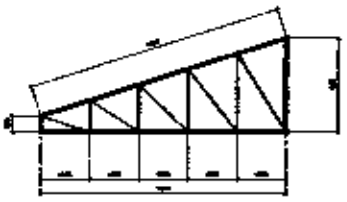


TYPICAL DETAIL OF SECTION OF BEAM

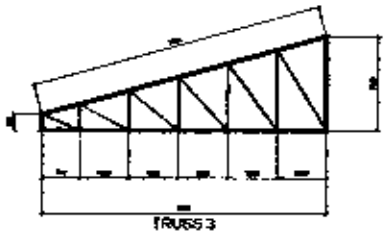
SCALE



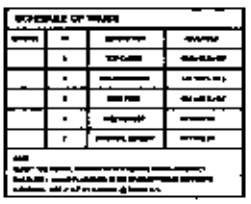
TRUSS 1



TRUSS 2

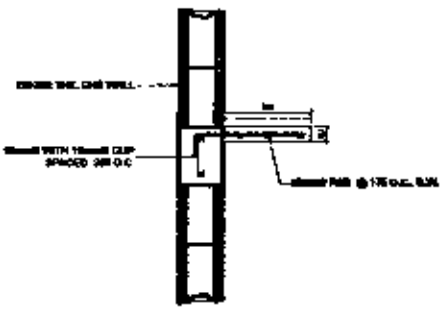


TRUSS 3



TRUSS DIAGRAM

SCALE



CANOPY DETAILS

SCALE

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE:

PROPOSED FIELD OFFICE

SHEET CONTENTS:

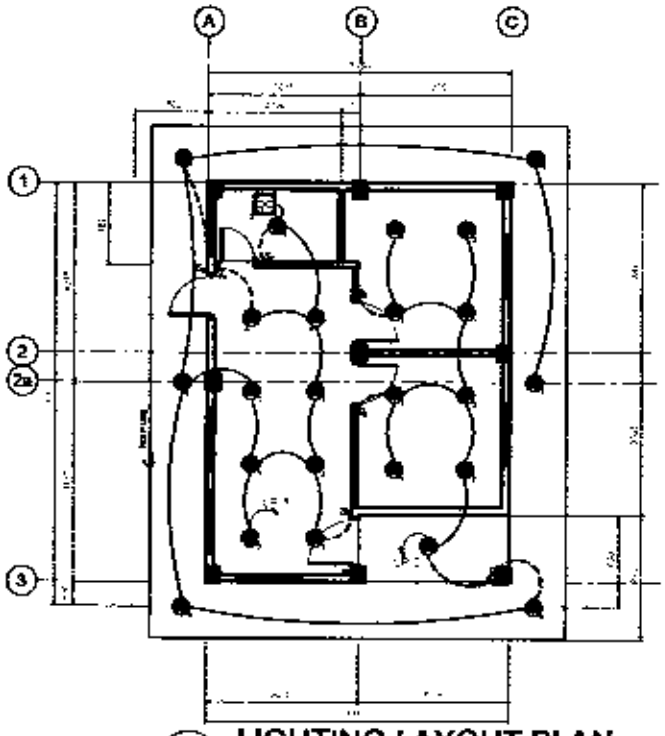
- FTB/GIRDER/BEAM SCHEDULE
- TYPICAL DETAIL OF SECTION OF BEAM
- TRUSS DIAGRAM
- CANOPY DETAILS

SCALE:

SHEET NO.

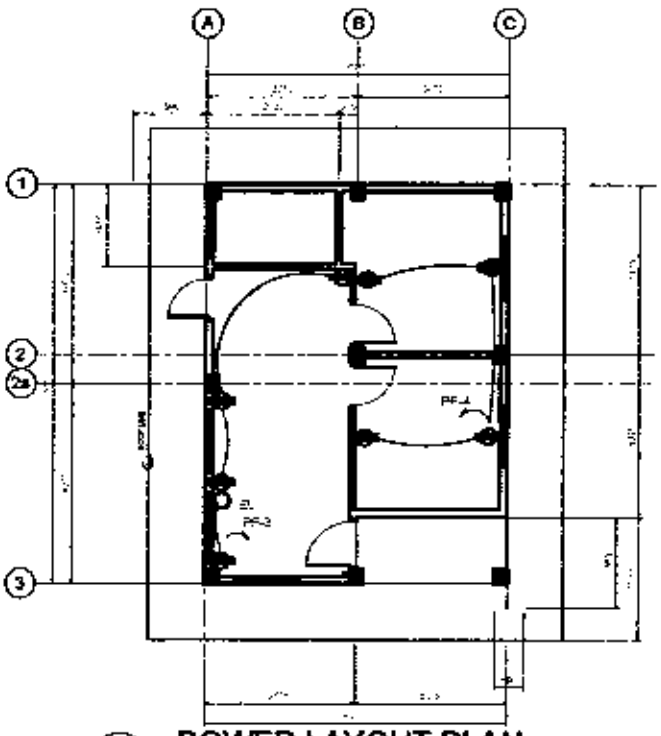
S-02 of 02

DATE



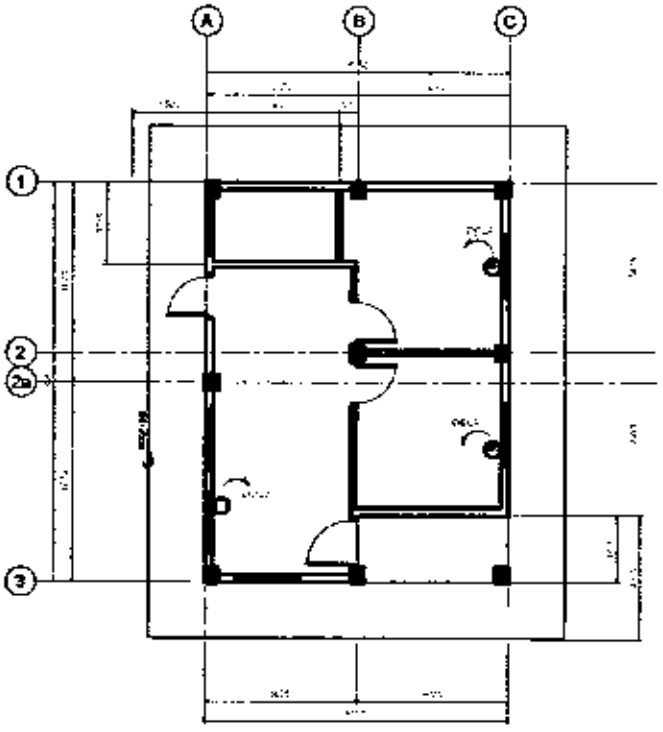
1 ET — LIGHTING LAYOUT PLAN

SCALE



2 ET — POWER LAYOUT PLAN

SCALE



1 FT — AIRCONDITION LAYOUT PLAN

SCALE

LEGEND:

- WEATHERPROOF RECESSED LED TYPE WITHOUT GLASS COVER
- 36 WATT 220 VOLT, 60 HZ
- SURFACE DUPLEX CONVENIENCE OUTLET WITH GROUNDING
- ONE GANG SWITCH, 15A
- TWO GANG SWITCH, 15A, SURFACE DENOTES LIGHT CONTROL
- THREE GANG SWITCH, 15A, SURFACE DENOTES LIGHT CONTROL
- WINDOW TYPE, AIR CONDITIONING UNIT @ PER STORY AGUI
- PANEL BOARD (LIGHT / POWER)
- CEILING EXHAUSTER
- TELEPHONE WALL MOUNT CONNECTION PROVIDED BY TELEPHONE COMPANY

LP/PP

SCHEDULE OF LOAD

CKT NO.	L1	L2	L3	LOAD DESCRIPTION	VOLT	CURRENT	WIRE mm² (THWN-STRANDED)	CONDUIT (mm DIA)	CKT BKR AT/AF PROTECTION
1				LIGHTING	220	4.00	3.5	19	30AT/2P
2				RECEPTACLE	220	3.00	3.5	19	30AT/2P
3				DUPLEX CONVENIENCE OUTLET	220	3.00	3.5	19	30AT/2P
4				AIRCONDITIONING OUTLET	220	5.00	5.5	25	30AT/2P
5				SPARE	220	0.00	5.5	25	30AT/2P
6				SPARE	220	0.00	5.5	25	30AT/2P
7				SPARE	220	0.00	5.5	25	30AT/2P
8				SPARE	220	0.00			30AT/2P
				MAIN DISCONNECTED PANEL MDP	220	20.00	5.5	25mm EMT/RSC	70AT/2P

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE:

PROPOSED FIELD OFFICE

SHEET CONTENTS:

- LIGHTING LAYOUT PLAN
- POWER LAYOUT PLAN
- LEGEND
- SCHEDULE OF LOAD
- MECHANICAL EQUIPMENT SCHEDULE

SCALE: AS SHOWN

SHEET NO.: E-01 of 01

DATE: APRIL 2021

GENERAL NOTES AND SPECIFICATIONS:

1. IT IS NOT INTENDED THAT THE DRAWINGS SHALL SHOW EVERY PIPE FITTING, VALVE AND APPURTENANCE. ALL SUCH ITEMS WHETHER SPECIFICALLY MENTIONED OR NOT, OR INDICATED ON THE DRAWINGS SHALL BE FURNISHED AND INSTALLED IF NECESSARY TO COMPLETE THE SYSTEM TO THE SATISFACTION OF THE OWNER
2. ALL PLUMBING WORKS SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISION OF THE NATIONAL PLUMBING CODE OF THE PHILIPPINES, THE REQUIREMENTS OF THE LOCAL PLUMBING INSPECTION OFFICE, PERTINENT PROVISIONS OF THE UNIFORM BUILDING CODE AND THE NATIONAL BUILDING CODE OF THE PHILIPPINES
3. COORDINATE THE DRAWING WITH OTHER RELATED DRAWINGS AND SPECIFICATION. THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY FOUND THEREIN
4. ALL PIPES SHALL BE INSTALLED AS INDICATED ON PLANS. ANY RELOCATIONS REQUIRED FOR PROPER EXECUTION OF OTHER TRADE SHALL BE WITH PRIOR APPROVAL OF THE ARCHITECT OR ENGINEER
5. PROPOSED SANITARY UTILITIES SHALL CONFORM TO THE ACTUAL LOCATION, DEPTH AND INVERT ELEVATION OF ALL EXISTING PIPES AND STRUCTURES AS VERIFIED BY THE CONTRACTOR.
6. ALL SLOPES FOR HORIZONTAL DRAINAGE SHALL MAINTAIN 1% UNLESS OTHERWISE SPECIFIED.
7. SIZE OF WATER SUPPLY PIPES TO FIXTURES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES AT THE SITE, COORDINATE THE WORKS WITH THE SEWER LINE EFFLUENT DISPOSAL POINT AND WATER LINE SERVICE CONNECTING POINT, UNLESS OTHERWISE POINT AND WATER LINE SERVICE CONNECTING POINT, UNLESS OTHERWISE SPECIFIED
9. ALL FIXTURES SHALL BE INDIVIDUALLY VENTED.
10. THE INVERT OF THE INLET PIPE OF A SEPTIC TANK SHALL BE AT A LEVEL NOT LESS THAN 60.5mm (2) ABOVE THE INVERT OF THE OUTLET PIPE
11. TO PREVENT CONTAMINATION OF UNDERGROUND WATER SOURCE NO SEPTIC TANK SHALL BE CONSTRUCTED LESS THAN 1.2m ABOVE THE WATER TABLE LEVEL.
12. ALL PIPE SIZE ARE IN MILLIMETERS AND ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
13. ALL PLUMBING INSTALLATION INCLUDED HEREIN SHALL BE UNDER THE DIRECT SUPERVISION OF A DULY REGISTERED AND LICENSED MASTER PLUMBER.
14. ALL PIPE SIZES AND OTHER DIMENSIONS ARE IN MILLIMETER (MM) UNLESS
15. ALL PIPE SIZES INDICATED ARE NOMINAL SIZES.

MATERIAL SPECIFICATIONS:

COLD WATER LINE-	SHALL BE POLYPROPYLENE RANDOM (PPR) TYPE 3 PIPE, "WAVIN ENDPLASTIK" BRAND OR APPROVED EQUAL.
VENT PIPES-	SHALL BE POLYVINYL CHLORIDE (PVC) PIPE SERIES 1000, "NELTEX", "ATLANTA" BRAND OR APPROVED EQUAL.
FITTING-	SHALL BE SOLVENT CEMENT JOINT TO ASTM D2564
SEWER LINES-	SHALL BE POLYVINYL CHLORIDE (PVC) PIPE SERIES 1000, "NELTEX", "ATLANTA" BRAND OR APPROVED EQUAL. D2564
BOTTOM DRAINAGE LINES/ DOWNSPOUT	SHALL BE POLYVINYL CHLORIDE (PVC) SERIES 1000, "ATLANTA" BRAND OR APPROVED EQUAL. FITTING SHALL BE SOLVENT CEMENT JOINT TO ASTM D 3564. 250MMØ & ABOVE MATERIAL SHALL BE CONCRETE DRAIN PIPE (CDP) TONGUE FOR 300MMØ & LARGER.
AHU/FCU LINES-	SHALL BE POLYVINYL CHLORIDE (PVC) PIPE SERIES 400 R, "NELTEX", "ATLANTA" BRAND OR APPROVED EQUAL.
CHECK VALVES-	"GREAT VOLUME"," CRANE", "NITS", OR APPROVED EQUAL.
GATE VALVES-	"GREAT VOLUME"," CRANE", "NITS", OR APPROVED EQUAL.
WATER METER-	"ARAD", "ASAHI" BRAND OR APPROVED EQUAL.

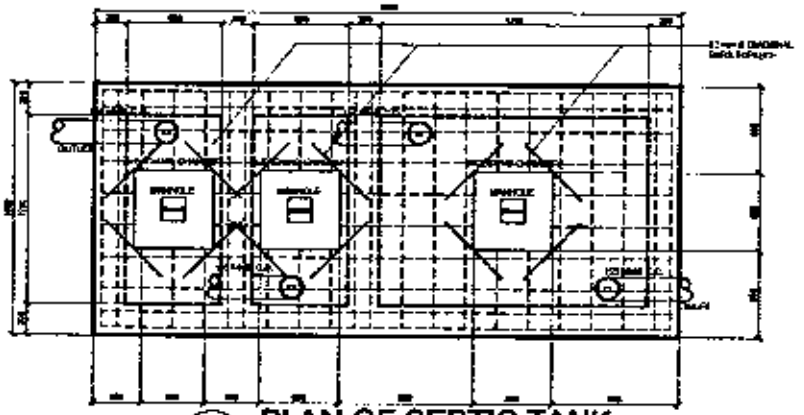
SCHEDULE OF PIPE (WATER LINE)

	ABV.	SIZE OF PIPE (mm)	TYPE OF PIPE
WATER CLOSET	WC	19	PPR
LAVATORY	LAV	13	PPR
URINAL	UR	19	PPR
KITCHEN SINK	KS	19	PPR

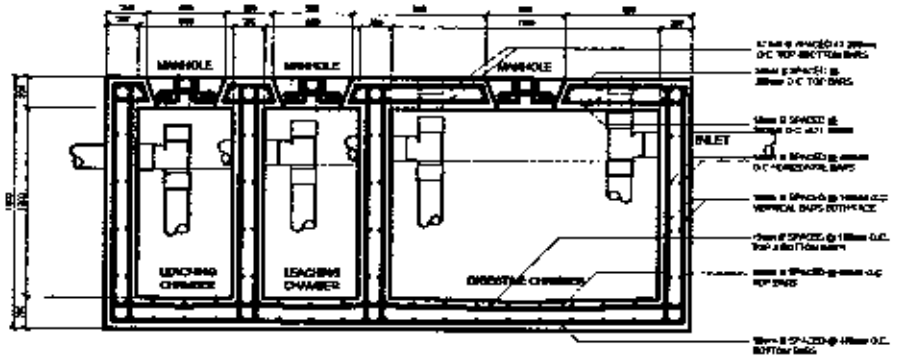
SCHEDULE OF PIPE (SEWER LINE)

	ABV.	SIZE OF PIPE (mm)	TYPE OF PIPE
WATER CLOSET	WC	100	PVC (SERIES 1000)
LAVATORY	LAV	38	PVC (SERIES 1000)
URINAL	UR	50	PVC (SERIES 1000)
KITCHEN SINK	KS	50	PVC (SERIES 1000)
FLOOR DRAIN	FD	75	PVC (SERIES 1000)
FLOOR CLEAN-OUT	FCO	SEE PLAN	PVC (SERIES 1000)
SEWER LINE	SL	SEE PLAN	PVC (SERIES 1000)
CLEAN-OUT	CO	SEE PLAN	PVC (SERIES 1000)
ROOF DRAIN/ SCUPPER	RD	100	PVC (SERIES 1000)
SEWER LINE (CDP, RPC)	SP	SEE PLAN	PVC (SERIES 1000)

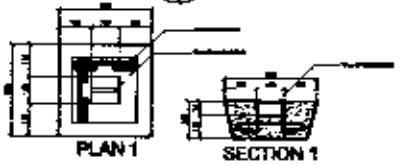
SEPTIC TANK DETAILS



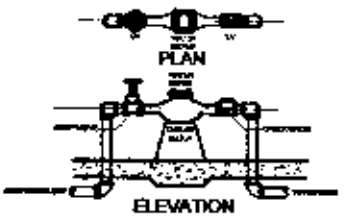
1-A P1 PLAN OF SEPTIC TANK
SCALE 1:50 M



1-B P1 LONGITUDINAL SECTION
SCALE 1:50 M



1-B P1 MANHOLE COVER DETAILS
SCALE 1:40 M



2 P1 WATER METER DETAILS
SCALE NTS

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE:

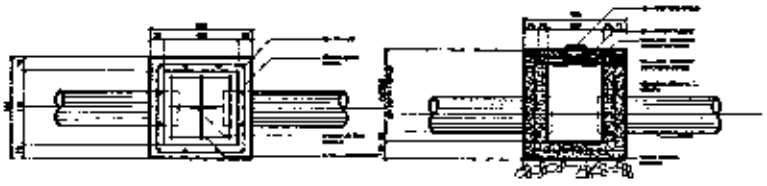
PROPOSED FIELD OFFICE

SHEET CONTENTS:
- DETAILS OF SEPTIC TANK
- DETAILS OF MANHOLE
- DETAILS OF WATER METER
- MATERIALS SPECIFICATIONS
- SCHEDULE OF PIPE (WATER LINE)
- SCHEDULE OF PIPE (SEWER LINE)

SCALE: AS SHOWN

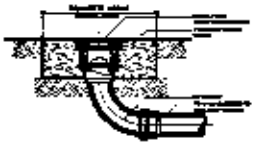
SHEET NO. P-01 of 03

DATE: APRIL 2021



CATCH BASIN DETAILS

SCALE 1:100 M

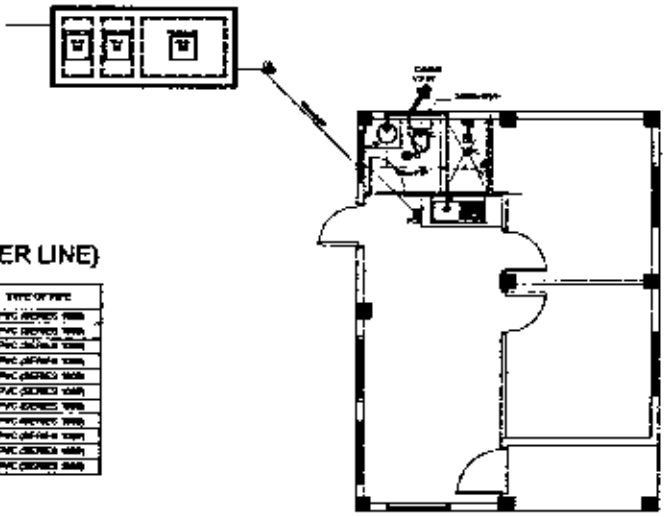


CLEAN-OUT DETAIL

SCALE NTS

PIPE TRENCH BEDDING

SCALE NTS



SCHEDULE OF PIPE (SEWER LINE)

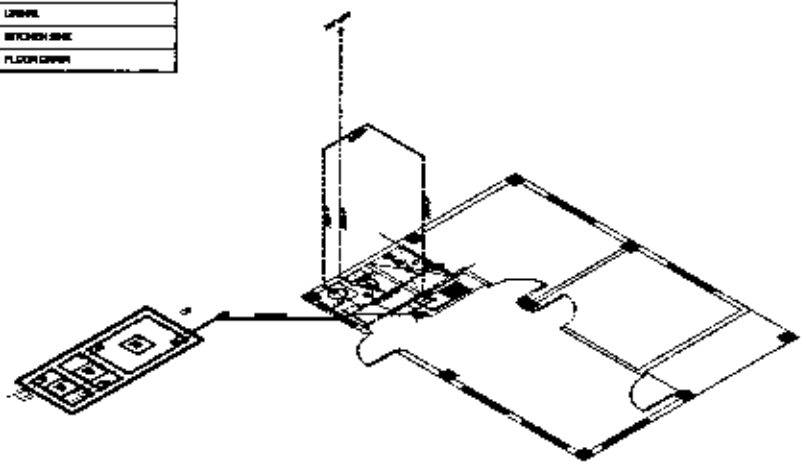
		SIZE OF PIPE (Dia)	TYPE OF PIPE
WATER CLOSET	WC	100	PVC (SERIES 1000)
LAVATORY	LAV	50	PVC (SERIES 1000)
URINAL	UR	50	PVC (SERIES 1000)
KITCHEN SINK	KS	50	PVC (SERIES 1000)
ROOF DRAIN	RD	50	PVC (SERIES 1000)
FLOOR DRAIN	FD	75	PVC (SERIES 1000)
FLOOR CLEANOUT	FCO	SEE PLAN	PVC (SERIES 1000)
DOWN SPOUT	DS	SEE PLAN	PVC (SERIES 1000)
CLEAN-OUT	CO	SEE PLAN	PVC (SERIES 1000)
VENT STACK THRU ROOF	VSTR	100	PVC (SERIES 1000)
SEWAGE LINE (SWL TYPE)	SP	SEE PLAN	PVC (SERIES 1000)

LEGENDS

	100mm ø PVC SANITARY PIPE
	50mm ø PVC SANITARY PIPE
	50mm ø PVC VENT PIPE
FCO	FLOOR CLEANOUT
CO	CLEANOUT
WC	WATER CLOSET
LAV	LAVATORY
UR	URINAL
KS	KITCHEN SINK
FD	FLOOR DRAIN

SANITARY SEWAGE LAYOUT

SCALE 1:100 M



ISOMETRIC SANITARY SEWAGE LAYOUT

SCALE 1:100 M

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE:

PROPOSED FIELD OFFICE

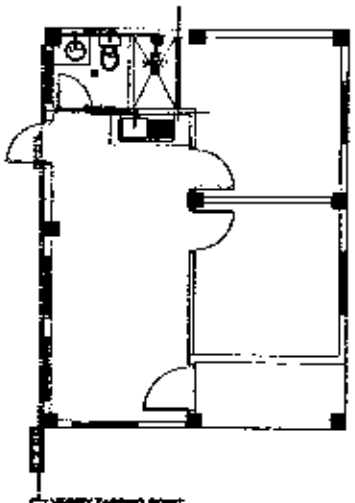
SHEET CONTENTS:

- SANITARY SEWAGE LAYOUT
- CLEAN-OUT DETAIL
- PIPE TRENCH BEDDING
- SANITARY SEWAGE LAY-OUT
- ISOMETRIC SANITARY SEWAGE LAYOUT
- SCHEDULE OF PIPE (SEWER LINE)
- LEGENDS

SCALE: AS SHOWN

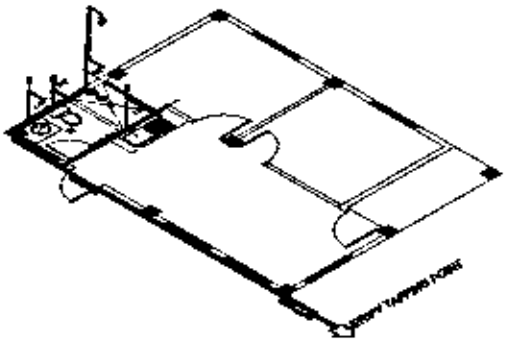
SHEET NO. P-02 of 03

DATE: APRIL 2024



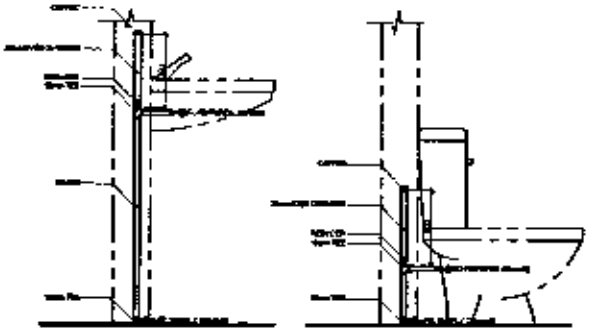
1 P3 **WATER LINE LAYOUT**

SCALE 1:150 M



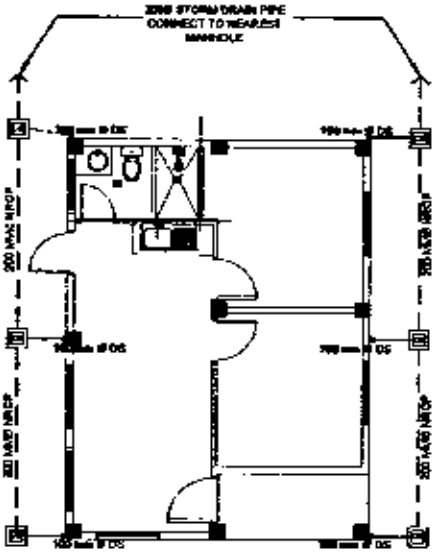
2 P3 **ISOMETRIC WATER LINE LAYOUT**

SCALE 1:150 M



3 P3 **DETAIL OF AIR CHAMBER**

SCALE NTS



4 P3 **GROUND FLOOR STORM DRAINAGE LAYOUT**

SCALE 1:150 M

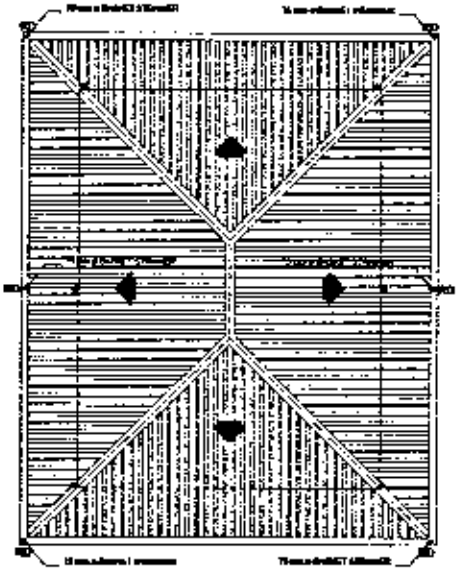
SCHEDULE OF PIPE (WATER LINE)

	ABBR.	SIZE OF PIPE (mm)	TYPE OF PIPE

LEGENDS

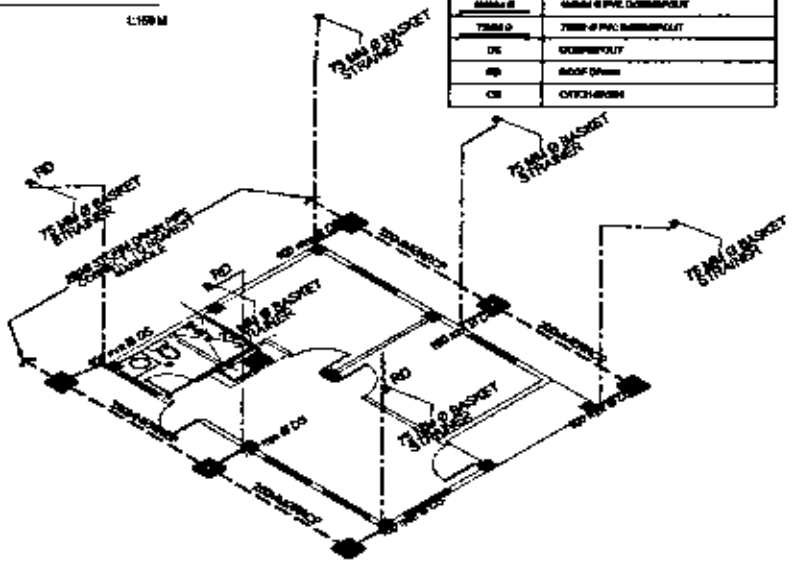
LEGENDS

DS	DOWNSPOUT
RD	ROOF DRAIN
CB	CATCHBASIN



5 P3 **ROOF STORM DRAINAGE LAYOUT**

SCALE 1:150 M



6 P3 **ISOMETRIC STORM DRAINAGE LAYOUT**

SCALE 1:150 M

PHILIPPINE PORTS AUTHORITY

PROJECT TITLE:

PROPOSED FIELD OFFICE

SHEET CONTENTS:

- WATER LINE LAYOUT
- ISOMETRIC WATER LINE LAYOUT
- SCHEDULE AND LEGENDS OF PIPE (WATER LINE)
- DETAILS OF AIR CHAMBER
- GROUND FLOOR STORM DRAINAGE LAYOUT
- ROOF STORM DRAINAGE LAYOUT
- ISOMETRIC STORM DRAINAGE LAYOUT
- LEGEND

SCALE:

SHEET NO. P-03 of 09

DATE

OFFICE EQUIPMENT FOR USE OF THE PPA ENGINEER AND STAFF

The Contractor shall provide within thirty (30) days after notice to commence work, the following main items of brand new office equipment for use of the Engineer and his staff. The Contractor shall make available for use of the Engineer other equipment as may be necessary for the proper functioning of the office. The equipment shall be the property of PPA. Operation and maintenance shall be borne by PPA.

	a) Office Furnitures and appliances	
2	sets	Office table, 1.5 x 0.70m with chair
1	set	Conference table w/ chair (6-str.)
2	pcs.	Single bunk beds w/ mattress & beddings
2	pcs.	Waste paper basket
1	pc.	Calculator (Scientific, 12 digit capacity)
1	pc.	Communication system, Cell phone
1	pc.	Filing Steel Cabinet, 4-drawers
2	units	Air-conditioned unit (1.0 hp., wdo type)
1	unit	Refrigerator (6 cu.ft.)
1	set	Gas stove (2 burner with tank)
1	unit	Hot and cold water dispenser (5 gal. Cap.)
1	pc.	White board with eraser and marker
1	unit	Stand fan (16" dia.)
	b) Computers and Accessories	
2	sets	Desktop Unit & Accessories
2	units	Uninterrupted Power Supply (UPS)
2	units	External Hard Drive (USB 3.0, 4TB)
1	unit	Computer Table
1	unit	Computer Chair
	c) Licensed Softwares	
2	units	Microsoft Office
	d) Service Vehicle including LTO registration and comprehensive insurance	
1	unit	Service Vehicle (up to 3.0 DSL Engine, 4x2, A/T)
1	lot	Comprehensive Insurance (1 yr.)
1	lot	LTO Registration (3yrs.)

COMPUTER AND ACCESSORIES

The Contractor shall provide within thirty (30) days after notice to commence work, **two (2) "Brand New Desktop"**, complete with accessories and licensed software for the use of the PPA Engineer and his Staff at the start of the project. The items shall be the property of PPA. Operation and maintenance shall be borne by PPA.

Description / Specifications:	**DESK TOP UNIT**
Brand/Model	*Asus, Apple, Lenovo, ACER, HP or Equivalent Branded*
Processor	*Intel ® Core ™ i7-9700K CPU*
System Memory	*8GB DDR4 Ram at 2666MHZ up to 32GB, 2DIMM slots*
Chipset	*Intel B360*
CD-ROM	*Tray load DVD Drive (Reads and Writes to DVD/CD)*
Graphics	*NVIDIA GeForce RTX 2060 6GDS*
SATA	*4 x SATA 6.0 Gbps*
HDD/SSD	*128GB SSD (M.2 PCIe 128GB) + 1TB HDD (3.5" 7200rpm)*
WIFI/ Bluetooth	*802.11ac 2x2/ Bluetooth 5.0*
LAN	*Realtek RTL8111H 10/ 100/ 1000Mbps*
Audio	*Realtek ALC887, DTS Headphone X*
Accessories	*Wireless Keyboard and Mouse*
Ports	*4 x USB 3.2, 2 X USB 2.0, HDMI, Audio Jack, RJ45 and Mic in/ headphone out*
Display (Monitor)	*27" inch. FHD (1920 x 1080 Display) with speaker, display ports, USB hub, earphone jack and PC audio inputs.*
OS Bundled (Certification/License)	***Windows 10** PRO for business*
External Hard Drive	*Portable (USB 3.0 Interface, at least 4TB Capacity)*

SOFTWARE

The Contractor shall provide within thirty (30) days after commence work, the specified **"License softwares" latest version** for the use of the PPA Engineer and staff. The software shall be the property of PPA. Operation and maintenance shall be borne by PPA.

SERVICE VEHICLE

The Contractor shall provide within thirty (30) days after notice to commence work, one (1) unit "Brand New" Transportation Service Vehicle for the use of the PPA personnel. The vehicle to be provided by the Contractor shall be to the satisfaction of PPA. The vehicle shall comply in all respect with all relevant national or local laws, statutes and regulations. The unit shall become the property of PPA. Operations and maintenance shall be borne by PPA.

The vehicle shall be diesel-fuel engine with a displacement of not more than 3000cc, 4 x 2 and with automatic transmission.

MINIMUM MAJOR EQUIPMENT REQUIREMENTS

2	unit/s	Air-compressor (250cfm, minimum), owned
1	unit/s	Backhoe (0.40 cu.m., 94.30hp, minimum), owned
2	unit/s	Centrifugal Trash pumps, owned/leased
2	unit/s	Clamshell, owned
2	unit/s	Concrete Cutter, owned
2	unit/s	Concrete Bucket, owned
1	unit/s	Concrete Screeder, owned
2	unit/s	Concrete Vibrator (3.50 hp, minimum), owned
1	unit/s	Crane Barge (319 GW, minimum) with 60T crane, owned
1	unit/s	Crawler Crane (30T, minimum), owned
1	unit/s	Pile Hammer (Diesel, 7,500 kg.m.), owned
4	unit/s	Diving equipment (complete), owned/leased
1	unit/s	Drop Hammer (2T, minimum), owned
1	unit/s	Dump Truck (8 cu.m., minimum), owned
2	unit/s	Bar Bender (electric, 25mm dia min.), owned
2	unit/s	Bar Cutter (electric, 25mm dia min.), owned
2	unit/s	Jackhammer, owned
1	unit/s	Jackhammer (U/W), owned/leased
1	unit/s	Oxy/Acetylene Cutting Outfit, owned
1	unit/s	Payloader (80 hp, minimum), owned
1	unit/s	Road Grader (125hp, minimum), owned
1	unit/s	Road Roller (12.05T, vibratory, minimum), owned
2	unit/s	Transit Mixer (5-6 cu.m. cap., minimum), owned/leased
1	unit/s	Tugboat (500hp, minimum), owned/leased
1	unit/s	U/W cutting equipment, owned/leased
1	unit/s	Water Truck (1,000 gal., minimum) with pump, owned
2	unit/s	Welding Machine (400 amp., minimum), owned
1	unit/s	Cargo Truck (5 Ton, minimum), owned
1	unit/s	Backhoe breaker attachment, owned

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) including stringent covid-19 protocols per PPA Engineering Circular No. 01-2020 and Construction Guidelines for Project Implementation during the period of public health emergency approved by PDCB and CIAP.

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:

L A B O R

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

EQUIPMENT / MATERIALS

Personnel Protective Equipment

43	pcs.	Hard Hats
43	pcs.	Gloves (rubberized)
43	pcs.	Safety Glasses/Goggles (clear)
86	pcs.	Long sleeve T-shirt
4	pcs.	Aprons
4	pcs.	Safety Belts
43	pcs.	Safety Shoes
4	pcs.	Life Lines

Safety Devices

1	lot	Barricades
1	lot	Warning signs
2	unit/s	Fire extinguisher
1	lot	Disinfection Booth with Footbath
43	no.	PCR Test for Covid-19 (Initial Testing)
43	no.	PCR Test for Covid-19 (Confirmatory Testing)

Medical and First Aid System	-	Eighteen (18) 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

Materials/Items of Work	*Required Tests*	*Minimum Incremental Frequency of Tests*
I. Construction of Pier/Wharf, Platform and Ramp		
Structural Concrete (SC)		
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
Piling (P)		
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

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)	
	- Under 14" (355.60mm) Outside Diameter	2 from 200 pipe of fraction thereof
	- 14" to 36" (355.6 to 914mm) Outside Dia	2 from 100 pipe or fraction thereof
	- Over 36" (914mm) Outside Diameter	2 from 3000ft (914m) or fraction thereof
	Mechanical/Tensile	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	All units
	Performance Test for Energy Absorption and Reaction Force	All units
Accessories		
Washer and Fixing Bolt, Anchor Bolt	Physical Test	All units
	Quality Test for Chemical Composition and Mechanical Properties	One per fabrication

Materials/Items of Work	*Required Tests*	*Minimum Incremental Frequency of Tests*
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
II. Construction of Back-Up Area, Causeway and Pavement		
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 Coose 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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Materials/Items of Work	*Required Tests*	*Minimum Incremental Frequency of Tests*
Rocks	Test for Apparent Specific Gravity and Abrasion	For every 1,500 cubic meter or fraction thereof
Geotextile Filter	Physical and Mechanical Test	One per batch
	Mill Certificate	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	For every 1,500 cubic meter or fraction thereof
	Laboratory California Bearing Ratio (CBR)	For every 2,500 cubic meter or fraction thereof
	Field Density Test	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	For every 300 cubic meter or fraction thereof
	Quality Test for Grading, Plasticity, Abrasion and Laboratory Compaction Test	For every 1,500 cubic meter or fraction thereof
	Laboratory California Bearing Ratio (CBR)	Same frequency as Selected Fill
	Field Density Test	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

Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
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)	Same frequency as SC (F)
	Flexural Test	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)

Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
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	All units
	Coating Thickness Magnetic Thickness Measurement	1 set (3 specimen) for every 100,000 sq mm or fraction thereof

Materials/Items of Work	*Required Tests*	*Minimum Incremental Frequency of Tests*
Sacked Concrete		
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
Rubble Concrete		
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
Earthworks		
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*
III Port Operations Building/Passenger Terminal Building/Transit Shed/Warehouse		
STRUCTURAL WORKS	Refer to Structural Concrete (SC) and Piling Works (P)	
ARCHITECTURAL WORKS		
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
ELECTRICAL AND MECHANICAL WORKS		
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

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
PLUMBING WORKS		
Pipes	Inspection and Evaluation Report from the Engineer Testing and Commissioning	One per item

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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
IV Miscellaneous Materials Fencing A Barbed Wire, Cyclone Wire Mesh, Chain Link	Physical Test (Dimensions and Coatings)	One per Batch
B Concrete Post	Refer to Superstructure (SC)	Refer to Superstructure (SC)
Lamp Post A Structural Steel	Physical Test (Dimensions) Same test as for SC (E)	All units
B Zinc (Hot Dip Galvanizing) Coatings	Same test as for CJ (C)	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

MAY 15 2020

PHILIPPINE PORTS AUTHORITY 45

ENGINEERING CIRCULAR NO. 01 2020

FOR : **THE MANAGER, PCMD**
ALL PORT MANAGERS
CONCERNED CONTRACTORS

FROM : **THE ASSISTANT GENERAL MANAGER,**
ENGINEERING OFFICE

SUBJECT : **SAFETY GUIDELINES FOR THE IMPLEMENTATION OF ALL PPA (CAPEX & RM) AND DOTr TOURISM AND SOCIAL REFORM PROJECTS DURING THE COVID-19 PUBLIC HEALTH CRISIS**

Pursuant to the Proclamation No. 929, series of 2020 issued by President Rodrigo Roa Duterte, declaring a State of Calamity throughout the Philippines due to the Coronavirus Disease 2019 (COVID-19) and in view of the extended implementation of Enhanced Community Quarantine (ECQ) and General Community Quarantine (GCQ) in the identified areas, the following guidelines, in addition to the existing safety standards approved by the DOLE and also to the PPA Memorandum Circular No. 18-2020, are hereby directed to be implemented in all on-going PPA infrastructure projects including the DOTr Tourism and Social Reform projects:

1. Only persons from Twenty-One (21) to Fifty-Nine (59) years of age, without pre-existing health conditions, such as, but not limited to immunodeficiency, comorbidities or other health risk and who did not come in contact with someone with COVID-19 shall be allowed to be included in the workforce for areas under ECQ and GCQ.

2. The Contractor shall provide for their personnel/workers the necessary welfare facilities and amenities, such as employees' quarters for board and lodging for the project area covered by the ECQ and GCQ, otherwise, prior to deployment, prescribed procedures shall be conducted at every instance of re-entry.

3. Adequate food, potable drinking water, disinfectants shall be made available by the Contractors for their in-house personnel/worker during the period of ECQ/GCQ.

4. Compliance to social distancing, proper hygiene and mandatory wearing of face masks and other protective personal equipment shall be ensured for all on-going projects as precautionary measures to avoid and contain the spread of COVID-19 in the work place.

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5. Field Offices, employees' quarters, bunkhouses and other common areas shall be maintained to ensure cleanliness and daily disinfection of said areas must be conducted accordingly.

6. Contractors shall provide disinfection facilities such as handwashing station, foot bath and others to be placed at various locations of all on-going projects.

7. Contractors shall ensure that their projects are in compliance with the DOLE D.O. No. 13 series of 1998. Personnel and workers shall be provided with the supply of vitamins particularly Vitamin C and other over the counter medicines, quarantine facilities and oxygen tanks for emergency purposes.

8. Safety Officer of the Contractor shall regularly conduct briefing on the information regarding COVID-19 construction protocols on top of other safety requirements.

9. As preventive measure, daily monitoring of the pre and post work health conditions of workers shall be undertaken by the Contractor's health/safety officer particularly the temperature, blood pressure and exposure monitoring. Personnel with symptoms relative to COVID-19 shall be immediately isolated and quarantined for fourteen (14) days and if necessary, brought to the DOH COVID-19 treatment facility under strict confidentiality/privacy.

10. Daily health monitoring report shall be prepared by the Safety Officer and to be submitted to the assigned PPA Project Engineer/Port Engineer.

11. Proper protocols in accordance with the DTI and DOLE Interim Guidelines and the Local Government Unit policy on work place prevention and control of COVID-19 shall likewise be strictly observed.

12. Daily work activities shall be under strict monitoring by the Safety Officer to ensure compliance with safety standards and quarantine protocols.

13. Sharing of construction and office equipment is discouraged. However, if it cannot be avoided, disinfection of equipment in between transfer shall be conducted.

14. All materials and equipment brought inside the project site shall be disinfected, as much as possible.

15. Non-essential personnel, visitors and general public shall be restricted to enter the project site. All personnel entering the construction site premises on a temporary basis (e.g. Delivery truck drivers, inspectors, etc) shall be properly logged and checked for symptoms. Gatherings, liquors, and/or merry-making are strictly prohibited in the project site.

16. PPA Port/Resident Engineer shall ensure strict compliance to DOLE D.O. No. 13, series of 1998 and implementation of the mentioned COVID -19 precautionary measures in the work place.

17. Clustered and staggered deployment of employees within the construction site shall be observed to minimize personnel contact.

18. Contractors shall submit to the implementing unit the inventory of work activities including the proposed sequencing of activities to be followed and undertaken to comply to the required social distancing. Break times shall be conducted in a staggered manner.

For strict compliance.

CONSTANTE T. FARIÑAS, JR.

C - PRMS
① Pls. furnish a soft/copies of these Guidelines to each OM for their info, reference and guidance
② CAGMG follow/up

June 29, 2020

MEMORANDUM

FOR : **The Assistant General Manager for Engineering**
Office of the Assistant General Manager for Engineering

F R O M : **The Manager**
Internal Audit Department (IAD)

SUBJECT : **Construction Guidelines for Project Implementation during the period of Public Health Emergency**

Last June 16, 2020, we received thru email the letter from the Construction Industry Authority of the Philippines (CIAP) to the General Manager dated June 15, 2020 (copy attached) regarding the above subject. CIAP is requesting PPA to assist them in disseminating the above Construction Guidelines to our stakeholders, including contractors and implementing units.

Relative to this IAD being the implementing unit for Constructors Performance Evaluation System (CPES) and relative to its implementation, may we seek assistance from your good office in disseminating the attached guidelines to the PPA Engineering Units and PPA constructors.

Thank you for your kind consideration.

VENICIUS V. VILLASEÑOR

Cc: The General Manager

Attachment/s: As stated

PHIL. PORTS AUTHORITY
ENGINEERING OFFICE
PROJ. DEV'T DEPARTMENT
RECEIVED
BY: TIME:
CODE NO.

Construction Guidelines for Project Implementation during the period of Public Health Emergency

Background

The President declared a state of public health emergency through Presidential Proclamation No. 922 s. 2020 to address the Corona Virus Disease (COVID-19) threat, subsequently placing the whole of Luzon under Enhanced Community Quarantine (ECQ) on 16 March 2020.

The Inter-Agency Task Force for the Management of Emerging Infectious Diseases (IATF), based on its risk assessment recommended the extension of the ECQ in high risk geographic areas in Luzon and the imposition of the ECQ in some high risk areas in Visayas and Mindanao, while proposing a General Community Quarantine (GCQ) in all low risk and moderate risk areas in the country from 1 May 2020 to 15 May 2020.

Different parts of the country are expected to progress through various levels of public health emergency and declared as high, medium, or low risk areas depending on the prevalence of COVID-19 cases and related statistics, thereby placing them under corresponding community quarantine status.

The construction industry which contributes about 4.2 million workers to the country's labor force, in anticipation of the lifting of ECQ, is getting ready to return to work and would like to ensure the safety and welfare of people, most especially those of its employees/workers. Construction industry players would like to focus on preventing the occurrence of and controlling the spread of the virus in the workplace, mindful that a single case of COVID-19 can lead to an interruption, if not total work stoppage.

The global pandemic has affected livelihoods, lifestyles and industries including the construction industry which relies heavily on human resources. Total work stoppage from the time ECQ was declared has had debilitating effects not just on workers who are mostly project based and therefore paid on a daily basis but on contractors as well, majority of whom or 88% are small and medium enterprises (SMEs).

The Philippine Domestic Construction Board (PDCB), an implementing board of the Construction Industry Authority of the Philippines (CIAP), mandated to formulate policies, plans, programs, and strategies for the development of the Philippine construction industry organized a Technical Working Group (TWG) comprised of representatives from contractors of varying sizes and suppliers coming from Luzon, Visayas and Mindanao to draft the proposed protocols for the industry in preparation for resumption of construction work in areas under quarantine. The TWG drafted the "Construction Guidelines for Project Implementation during the period of Public Health Emergency" as a reference for contractors and implementing agencies, to ensure viability of projects and protection from and spread of the corona virus.

The TWG considered four (4) major components of the project cycle, namely: Materials, Manpower, Machinery and Money or the 4Ms of construction in creating the

PHILIPPINE DOMESTIC CONSTRUCTION BOARD
CONSTRUCTION INDUSTRY AUTHORITY OF THE PHILIPPINES
An Attached Agency of the Department of Trade and Industry
5/F Executive Building Center
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guidelines. These were developed considering SME contractors which employ the biggest chunk of the industry's labor workforce and large contractors involved in both public and private infrastructure projects as well as vertical construction. The guidelines will give pointers in managing their human resources at this critical time but will likewise give important directions to contractors in managing their business not just for survival but to be able to contribute to the country's economic recovery program.

The TWG is presenting options or courses of actions which contractors may consider depending on applicability to the project's unique characteristics while maintaining minimum requirements based on guidelines by government authorities such as the IATF Omnibus Guidelines for the Implementation of Community Quarantine in the Philippines, Department of Trade and Industry (DTI) and Department of Labor and Employment (DOLE) Interim Guidelines on Workplace Prevention and Control of COVID-19, and DOH Department Memorandum No. 2020-220, Interim Guidelines on the Return-to-Work.

These guidelines are subject to periodic review to better respond to developments and ensure workers health and protection as well as compliance with government regulations.

Purpose

The guidelines will set key principles and minimum requirements that define responsible, healthy and safe operations for construction related operations under COVID-19 and ensure the survival of business as well as the protection of workers.

Scope / Coverage

The guidelines will include prevention, detection, and rapid response measures designed to achieve the principles above while maintaining business continuity across the construction industry.

Policy Content / Guidelines

Materials

I. Deliveries

1. All equipment and material deliveries must be carefully planned and monitored.
2. Transition and delivery zones are identified and limited to select personnel, i.e., receivers and deliverers.
   2.1. Transition personnel are regularly monitored, always provided required Personal Protective Equipment (PPEs) and may be included for optional testing.
   2.2. Social distancing and other protocols by the Department of Health (DOH) should be followed.
3. As much as possible, cargo is unloaded only by the receivers, while the deliverers do not leave their vehicles. If the receivers are not enough to unload the cargo, the deliverers must unload while the receiver has to wait at a secured distance until completed.

4. All cargo should undergo proper disinfection procedures before use. Likewise, involved staff should also be properly disinfected before entering the jobsite.
   4.1. Materials, which are exposed to the sun, such as concrete and gravel, need not be disinfected.

Manpower

I. Awareness and Communication

1. Active communication between the workers, safety officers *(as specified under Section 14 of R.A. 11058 and its Implementing Rules and Regulations (IRR) as specified in DOLE D.O. 198 S. 2018)*, site supervisors, and management is advised in planning and implementing the protocols.
   1.1. All languages and dialects should be accounted for to ensure proper communication.
2. Infographics (may adopt DOH's), signages, and posters on health and safety measures (see Annex A) must be posted at entry points and strategic areas:
   2.1. Daily updates on the latest developments.
   2.2. Self-screening measures.
   2.3. COVID-19 Hotline.
3. As much as possible, all workers should exercise the practices for reducing the risk of transmission, and proper hygiene as identified by the DOH:
   3.1. Social distancing [at least one (1) meter distance from next person].
   3.2. Proper handwashing using anti-bacterial soap (or use alcohol-based hand sanitizer when unavailable).
   3.3. Avoid contact with own eyes, nose, and mouth.
   3.4. Prohibit spitting.
   3.5. Covering of mouth with tissue or arm (if tissue is unavailable) when sneezing or coughing.
   3.6. Use and remove PPE with care.
   3.7. Do not share personal belongings such as phones, pens, PPEs.
   3.8. Avoid physical greetings (e.g. handshakes, hugs).
4. All workers' status on-site and off-site, are properly noted at all times by the safety officers.
   4.1. Fit to work
   4.2. Sick
   4.3. High temperature
   4.4. Other conditions
5. An acceptable level of health evaluation is properly communicated between new hires and management.
6. All workers would need to provide their location or place of residence prior to working. This is to help create a proper algorithm for contact tracing.
   6.1. Additionally, workers coming from COVID-19 hotspots would need to be identified.
7. Quarantined workers should also be kept track of under strict confidentiality and privacy.

II. Clearing for Return to Work

1. Stringent qualification criteria for employees/workers:

1.1. Must be 21 to 59-year-old, without pre-existing health conditions, such as, but not limited to, immunodeficiency, comorbidities, or other health risks, including any person who resides with the aforementioned.
1.2. Employees or consultants who are 60-year-old or above may be part of the workforce for construction projects as may be allowed under General Community Quarantine (GCQ) and ECQ guidelines under Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines dated 15 May 2020 which states that those aged 60 and above may be allowed to work in permitted industries and offices.
1.3. Must have no COVID 19 symptoms.

2. Screening and entry at construction site. Item 4, Section 8 of the Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines, dated 15 May 2020, states that "Compliance with Joint DTI-DOLE Return-to-Work Guidelines and DOH Return-to-Work Guidelines shall be considered sufficient compliance with minimum health standards. In no case shall the testing of all returning workers be construed as a condition precedent for his/her return." The most important screening step is checking all returning workers for symptoms within the last 14 days and excluding anyone who is symptomatic. (Annex B) Contractors have the option to test workers for COVID-19 thru DOH prescribed testing protocols to determine if there is asymptomatic transmission.
2.1. The Human Resource Department should undertake daily health pre-screening (see Annexes C & D – DOLE Work Resumption Protocol & pre-screening sample form). Returning employees/workers should be made aware of giving accurate information as specified in RA 11332.
2.2. All returning employees/workers must declare (via SMS) any recent travel history to or residence in an area with a reported case of local transmission of COVID-19 over the 14-days prior to entry.
2.3. Returning workers that do not show any symptoms will be quarantined for 14 days within the jobsite and will be allowed to work under a zoned or grouped area.
2.4. Those who have been living/confined in the barracks during ECQ/GCQ period for at least 14 days and with no symptoms, will be allowed to work immediately.
2.5. Management should have an understanding and plan on how the workers travel to and from the jobsites.
2.6. A heightened gate entrance screening protocol (see Annex E – Sample Protocol for Screening Employees and Visitors per DTI-DOLE interim Guidelines) with the use of non-contact thermal scanners on ALL personnel upon entry to construction premises will be implemented. He/She must declare recent possible exposure to confirmed COVID-19 cases, including travel history to or residence in an area with reported local transmission of COVID-19 disease. The individual should also attest that they are not experiencing the following symptoms: (see Annex F – Daily COVID-19 Health Checklist Form)
2.6.1. Fever
2.6.2. Cough
2.6.3. Shortness of breath
2.6.4. Colds
2.6.5. Sore throat

2.6.6. Runny nose
2.6.7. Nasal congestion
2.6.8. Muscle pains
2.6.9. Headache
2.6.10. Difficulty of breathing
2.6.11. Diarrhea
2.6.12. Loss of sense of smell
2.6.13. Loss of sense of taste

2.7. Security guard or assigned personnel/ safety engineers on duty will then refer these personnel to the Safety and Health Personnel, who will then conduct the DOH Decision Tool for COVID-19 Assessment.

2.8. Employers shall provide the DOLE through its Regional Office copy furnished DOH, monthly report of illness, diseases and injuries utilizing the DOLE Work Accident/Illness Report Form (WAIR) (see Annex G).

3. Suspected Cases (Possible cases of COVID-19)

3.1. Any individual exhibiting flu-like symptoms should not report to work. Instead, they should do the following:

3.1.1. Self-isolate, alert their safety officers or other applicable authorities.
3.1.2. Contract proper health authorities for additional guidance.

3.2. Employees/workers, who had the COVID-19 virus, should do the following before reporting to work:

3.2.1. Fulfill the adequate time for self-quarantining as recommended by the DOH.
3.2.2. Test negative for COVID-19.
3.2.3. Receive proper medical clearance, before reporting to work.

3.3. In the event of a worker contracting COVID-19 while working, the management should do the following:

3.3.1. Isolate the worker immediately in a separate well-ventilated holding area (or in site isolation room) in the workplace, away from other workers.
3.3.2. Contact local government and health authorities.
3.3.3. Gather records of all people who have worked with the infected worker, who tested positive within the past four weeks.
3.3.4. Gather information on those who have been in location or shared equipment with the person.
3.3.5. Provide COVID-19 testing to all workers, who have been working closely with the infected individual.
3.3.6. Be ready to present the information to the appropriate authorities.
3.3.7. Inform the wider workforce of the situation while protecting the privacy of the individual.
3.3.8. Clean and disinfect all site surfaces and equipment.
3.3.9. Follow any additional directions from local government and health authorities.

3.4. For senior personnel, who are working in multiple jobsites, they are expected to self-quarantine for at least 14 days, if there has been a breach in one of their jobsites.

3.5. The safety officer should have a knowledge on the proximate hospitals or quarantine facilities to ensure that in the event of a COVID-19 incident, workers can be given proper healthcare.

III. Monitoring

1. Health Checks
   1.1. Regular monitoring of personnel's health, especially for COVID-19 symptoms (e.g., mandatory regular no contact temperature check).
   1.2. Day to day monitoring of personnel's health.
2. Workers Hygiene
   2.1. Constant reminder on proper coughing etiquette.
3. Limit number of Work Personnel
   3.1. Limited mobilization of personnel and minimized skeletal staff.

IV. Proper Work Attire

1. All workers must wear the prescribed clothing of the DOLE-OSHC:
   1.1. Shirt with sleeves
   1.2. Pants
   1.3. Closed-toe boots
   1.4. Hard hat
   1.5. High visibility vest
   1.6. Other necessary Personal Protective Equipment (i.e. face masks, gloves, goggles, face shields, etc.) shall be prescribed based on specific characteristics of project.
2. As per the DOH, all workers are expected to wear proper face masks.

V. Social Distancing and Precautionary Measures

1. Social distancing should be observed at the construction site and in the office:
   1.1. All workers should respect social distancing guidelines, as much as possible.
2. Provision for transport compliant with social distancing requirements.
3. Provision of On-/Near-Site accommodations/barracks, where available.
   3.1. Enough space should be provided for every employee/worker staying in the barracks to ensure that social distancing (at least 50% reduction in density of people) are adequately implemented. This can be achieved either by providing additional space/facilities or by having occupants work (and sleep) in shifts.
   3.2. Segregate employees/workers who are coming back to work from those who originally stayed in the barracks during the ECQ period.
   3.3. Barracks should have at least one (1) meter of physical distance from each occupant and/or provision of a physical barrier in between occupants.
   3.4. Should be well ventilated / windows opened to allow fresh air circulation.
4. Provision of dedicated point-to-point shuttle service (residence-workplace-residence and compliant with social distancing).
5. Observe social distancing (e.g., no sharing of workspaces, staggered lunch breaks, use of large conference rooms only) and hygiene measures (e.g., provide hand washing and disinfection stations, mandatory use of face masks) in workplaces, shuttles and accommodations.
   5.1. Split/alternating shifts are encouraged to avoid extensive intermingling.
   5.2. Breaks should be staggered to limit the number of people in proximity with each other.

5.3. Individuals are expected to clean up their own areas after eating with proper disinfectants.
5.4. Limit the number of people operating or occupying freight elevators.
5.5. Designate smoking area:
  5.5.1. Smokers/vapers must use designated area or do so off-site and butts are to be placed in the designated receptacle. Hands must be washed before and after smoking.
  5.5.2. Stand so that smoke or vapor produced is not going into another person's breathing zone.
5.6. Site meetings:
  5.6.1. Only absolutely necessary meeting participants should attend.
  5.6.2. Attendees should be one (1) meter apart from each other.
  5.6.3. Rooms should be well ventilated / windows opened to allow fresh air circulation.
  5.6.4. Hold meetings in open areas where possible.
  5.6.5. Conduct toolbox meetings in wide open spaces to enable workers to keep the required physical distance of at least one (1) meter. (see Annex H).
  5.6.6. Meetings are to be held through teleconferencing or videoconferencing, where possible.

VI. Site Operations / Construction Work Site

1. Access and Movement to/from Construction Site
  1.1. If possible, establish one-way staircases and walkways to minimize workers' contact.
  1.2. Management can look up possible decontamination chambers (e.g. swimming pool grade-chlorine).
  1.3. All people entering and exiting the workplace should be registered, for easier contact tracing in the event of an outbreak.
  1.4. All non-essential workers are prohibited from entering the jobsite.
2. Limiting and Removing internal touch points areas.
3. Compartmentalization
  3.1. If possible, divide the construction site into zones or other methods to keep workers physically separated. This will promote social distancing and will make containment of possible outbreak easier.
    3.1.1. Limit on the number of people per zone is advised.
    3.1.2. Management can consider reducing workforce in the jobsite.
4. Construction Site Cleaning
  4.1. Regular disinfection of workplaces, shuttles, and accommodations.
  4.2. All offices and jobsites should disinfect the following at least twice per day:
    4.2.1. Door handles
    4.2.2. Railings
    4.2.3. Ladders
    4.2.4. Switches
    4.2.5. Controls
    4.2.6. Shared equipment
    4.2.7. Common and eating areas
    4.2.8. Personal workstations

4.3. Hands and common tools/equipment are cleaned or disinfected after each task.
4.4. Awareness on location of commonly used items
5. All offices and jobsites should implement additional cleaning measures of common areas as recommended by the DOH.
6. Management can look up possible decontamination chambers (e.g. chlorine, iodine, betadine, potassium persulfate).
6.1. Demisting only decontaminates the surface, thus the need for PPEs.
6.2. Suggested additional sanitary measures to be implemented/installed on site but are not limited to the following:
6.2.1. Water stations
6.2.2. Proper handwashing areas and hand washing protocol.
6.2.3. Alcohol-based hand sanitizer shall be provided in all department areas, entrances, canteens, beside hand punch machines and other facilities.
6.2.4. Disinfectant wiping products.
6.2.5. Footwear disinfection treatment units (foot baths) before entering site premises or facilities (staff houses, barracks, canteens/mess halls, site offices and others).
7. Limit and remove internal touch point areas (e.g. coffee machines, water fountains, common pens). If possible, also remove doors/ door handles for jobsites.
8. A proper waste and disposal area must be provided, as well as proper disposal of contaminated products.

VII. Additional Guidelines for Vertical and Horizontal Projects

1. If possible, all construction workers are to be housed in either on-site barracks, or off-site barracks. This would make monitoring of workers' activities easier.
1.1. All workers must use the same vehicles they came into work in, if returning to the off-site barracks.
1.2. All vehicles would need to be disinfected, before being ready for use the next day.
2. Management can also look into using the floors of buildings, as barracks, with proper permission of the owners.

Machinery

1. All equipment deliveries must be carefully planned, monitored and managed to avoid the risk of COVID-19 transmission.
2. All delivered equipment must be cleaned and disinfected before use.
3. Assign regular worker to use the equipment, if possible. If sharing cannot be prevented, take precautions and follow the cleaning guide before and after each use.
4. Clean equipment before and after each day's work with a disinfectant, concentrating on points of contact such as handles.
5. If equipment needs to be transferred to other construction sites, the following action must be taken into considerations:
5.1. Plan, monitor and manage the transfer of equipment.
5.2. Equipment should be disinfected before transporting.

5.3. Transporting driver must be recorded including the assistant.
5.4. At the delivery site, equipment should be properly endorsed.
5.5. Once the equipment is received at the project site, number 2, 3 and 4 must be done.

Money

Contracting parties need to discuss, before resumption or start of work, contract provisions on: Payments, Variations and Timelines considering the effects of current government health and safety standards that have to be complied with to prevent the spread of the coronavirus pandemic and ensure workers' protection from the contagious disease. Contractors' concern on cash flow, price escalation, time extensions and productivity will need to be established and agreed with project owners. Contractors need to devise project implementation plan aligned with government approved health and safety protocols.

Contractors need to familiarize themselves with Republic Act (R.A.) 11469 or Bayanihan to Heal As One Act; R.A. 11058 and its IRR as specified in DOLE D.O. 198 S. 2018, and DOLE's D.O. 13 and ensure contracts are aligned with these landmark regulations. For projects with signed contracts before the onset of the coronavirus pandemic, contractors need to check on DOLE's guidelines on drafting new contracts so provisions on employment details, i.e. accommodations, meals, etc. can be included as these are expected to be heavily affected by new guidelines on health and safety. Company code of disciplines may likewise need to be reviewed and re-written to consider pandemic guidelines and ensure employees/workers' full support and cooperation.

Pursuant to Section 21 of DOLE D.O. 198, s. 2018, *"The total cost of implementing a OSH program shall be an integral part of the operations cost. It shall be a seperate pay item in construction and in all contracting or subcontracting arrangements."* to cover the cost inflected during this Public Health Emergency. These costs include, but are not limited, to testing kits; personal protective equipment; workers' barracks; quarantine facilities; isolation rooms; disinfectants; sanitation equipment and facilities; and other expenses relative to compliance with safety and health standards during construction.

Contractors should conduct periodic audits (frequency to be determined based on a project scale and scope) to verify that the appropriate measures have been implemented and are maintained.

The site supervisors and safety officers are expected to conduct daily audits, and safety reports to management in order to make sure that the appropriate measures are implemented and followed.

Construction companies should expect to deal with heightened safety and health guidelines until such time that the pandemic has fully been eradicated, and:

1. Analyze contract requirements;
2. Comply with contractual notice requirements;
3. Adapt and Adjust schedule;
4. Coordinate and Cooperate with all participants; and

5. Document everything.

Risk Assessment and Response:

1. All contractors would need to guarantee the minimum level of standards to protect the health of the workers engaged in the construction sites.
2. Before any activity is resumed, all hazards, due to the halting of work, must be reviewed and controlled.
   2.1. Workers involved should have proper understanding of the operations and environment condition checking
3. An integrated continuity plan should also be provided in the event of a partial or complete shutdown of jobsite or if jobsite operations are severely limited.
4. All contractors should complete an integrated continuity plan to respond to partial or complete shutdown of construction sites or in the case of a severe limitation of site operations.

The COVID-19 pandemic affects working hours and earnings in all businesses, globally. However, the construction industry is unique with respect to the COVID-19 because construction contracts typically contain provisions about time for performance and fees for failing to perform on time. There is no question that all participants in the construction industry have experienced, and will continue to experience, impacts on their operations because of COVID-19 and experts say the fallout is one more factor poised to affect construction firms. These impacts include, among others, schedule delays, workforce disruptions, equipment and supply chain disruptions, reduced productivity due to on site health and safety measures (e.g., social distancing, staggering of work, enhanced sanitary measures, etc.), permit delays or restrictions on new permits, and financing restrictions or cash flow shortages.

Therefore, it is critical that construction companies be proactive rather than reactive in dealing with the COVID-19 and it is highly recommended that they take the following steps with respect to the coronavirus:

1. Define – identify the company's main vulnerabilities (convene a meeting with senior management and decision-makers to identify potential impacts on the company).
2. Assess – understand if and how the company is prepared to deal with the company's main vulnerabilities (review any existing plans and procedures to ensure they are current and begin preparing business continuity and crisis management plans and procedures aimed at minimizing potential impacts on the company).
3. Implement and Manage – ensure the company's plans and procedures work (work with senior management and decision-makers to establish and embed response and recovery arrangements and confirm senior management and decision-makers understand their roles and support how the plans and procedures will be used).
4. Communicate and Remain Vigilant – ensure the company's teams are informed (assign clear responsibilities for internal and external communications).

This pandemic was not foreseeable and unfortunately, its duration and fallout remain uncertain. What is certain is that the world is transitioning. Being prepared for this will be essential to managing the outcome and minimizing negative impacts.

Monitoring

DTI-CIAP is revitalizing its Joint Administrative Order No. 01, S. 2011 with DOLE, DPWH, DILG and the Professional Regulation Commission (PRC) to strengthen coordination and enhance the implementation of the Construction Guidelines on Project Implementation for the period of Public Health Emergency, DOLE D.O. 13 and R.A. 11058 and its IRR as specified in DOLE D.O. 198 S. 2018, and specifically, enforce strict monitoring of construction activities.

The DOLE shall refer to the Philippine Contractors Accreditation Board (PCAB) its findings, after due process, on any act or omission committed by construction contractors in violation of labor standards, safety rules and regulations and other pertinent policies.

Effectivity

These guidelines shall take effect after approval by the CIAP Board and posting in the official gazette (www.officialgazette.gov.ph) and CIAP website (www.ciap.dti.gov.ph).

References

1. *WHO – Getting your workplace ready for COVID-19, 19 March 2020*
2. *Philippines – Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines as of 15 May 2020*
3. *Philippines – COVID-19 Protocols for Construction Sites Workers Safety and Security Version 3 by Philippine Constructors Association (PCA) as of 25 April 2020*
4. *Australia – Building and Construction Industry' Minimizing the Risk and exposure to COVID-19 as of 9 April 2020*
5. *Canada – COVID-19 – Standardized Protocols for all Canadian Construction Sites Version 4*
6. *New Zealand COVID-19, V&H Construction Protocols Version 2*
7. *New Zealand – COVID-19 Health and Safety Protocols for New Zealand Residential Construction Sites Version 3, 22 April 2020*
8. *DOH – Administrative Order No. 2020-015, "Guidelines on the Risk-Based Public Health Standards for COVID-19 Mitigation"*
9. *DOH Department Memorandum No. 2020-151, Interim Guidelines on Expanded Testing for COVID-19, reiterated under DOH D.M. No. 2020-174*
10. *DOH D.M. No. 2020-0220, s. 2020, Interim Guidelines on the Return-to-Work as of 11 May 2020*
11. *DPWH D.O. 39, S. 2020, Revised Construction Safety Guidelines for the Implementation of Infrastructure Projects during the COVID-19 Public Health Crisis, repealing D.O. No. 35, S. 2020*
12. *DTI - DOLE Interim Guidelines on Workplace Prevention and Control of COVID-19*
13. *DTI and DOLE Webinar on 8 May 2020*
14. *DOLE Labor Advisory No. 18, S. 2020, Guidelines on the Cost of COVID-19 Prevention and Control Measures, 16 May 2020*
15. *DOLE Department Order 13: Guidelines Governing Occupational Safety and Health in the Construction Industry*
16. *R.A.11058, "An Act Strengthening Compliance with Occupational Safety and Health Standards and Providing Penalties for Violations thereof" and its Implementing Rules and Regulations as specified in DOLE D.O. 198 S. 2018*
17. *DOLE-DPWH-DTI-DILG-PRC Joint Administrative Order No. 1, Series of 2011*

18. *EEI Guidelines on the COVID-19 Prevention and Control at the Workplace (Alert level code RED sub-level 2)*
19. *DMCI Work Resumption Protocols as of 22 April 2020*

Acknowledgment

The Construction Guidelines for Project Implementation during the period of Public Health Emergency would not have been possible without the patience, diligence and selfless dedication of the following members of the Technical Working Group (TWG) who religiously participated in the deliberations and drafting work:

Philippine Domestic Construction Board (PDCB)
Liberito V. Espiritu
Ronaldo R. Elepaño, Jr.
Dino Mae D. Sueño
Warren Simon W. King
Doris U. Gacho
Luzon
Norman K. Macapagal
Visayas
Francis Gerard S. Carledo
Edgar B. Watin
Kevin Bling Lim
Benedict C. Uy
Mindanao
Ludwig Van A. Ledesma
Lourdes Ledesma, M.D
Ramon F. Allado
Wilfredo H. Guerzon
Philippine Constructors Association (PCA), Inc.
Ranoff T. Reñera
Arlan P. Vargara
Eduardo P. Trinidad
Government
Assistant Secretary Mariano R. Alquiza – DOLE
Assistant Secretary Antonio Molano Jr. – DPWH

The Technical Working Group (TWG) was ably assisted by the following staff of the Philippine Domestic Construction Board:

Leilani d.L. del Prado
Jocelyn C. Carrasco
Niko C. Najarro
Arlene Monique D. Balaoing
Dana Lorraine C. Faurillo
Rose Ann A. Bolitres

TATAG at TAPAT
BUILDING WITH INTEGRITY

15 June 2020

Atty. JAY DANIEL R. SANTIAGO
General Manager
Philippines Ports Authority (PPA)
Bonifacio Drive, South Harbor
Port Area, Manila

Subject: **Construction Guidelines for Project Implementation during the period of Public Health Emergency**

Dear Atty. Santiago:

Greetings!

In line with the President's declaration of Public Health Emergency in the country to address COVID-19, the **Philippine Domestic Construction Board (PDCB)**, an implementing board of the **Construction Industry Authority of the Philippines (CIAP)**, mandated to formulate polices, plans, programs, and strategies for the development of the Philippine construction industry organized a **Technical Working Group (TWG)** composed of representatives from contractors of varying sizes and suppliers coming from Luzon, Visayas and Mindanao to *formulate protocols for the industry* for resumption of construction work in areas under quarantine.

As a result, we have developed the **"Construction Guidelines for Project Implementation during the period of Public Health Emergency"** to serve as *reference for contractors and implementing agencies*, to ensure viability of projects and protection from and spread of the coronavirus. The Guidelines were approved by the PDCB and CIAP Board on May 18 and June 2020, respectively.

These guidelines set key principles and minimum requirements that define responsible, healthy and safe operations for construction-related operations under COVID-19 and ensure the survival of business as well as the protection of workers. These guidelines include prevention, detection, and rapid response measures designed to achieve the principles above while maintaining business continuity across the construction industry.

These also present options or courses of actions which contractors may consider depending on applicability to the project's unique characteristics while maintaining minimum requirements based on guidelines by government authorities such as the IATF Omnibus Guidelines for the Implementation of Community Quarantine in the Philippines, Department of Trade and Industry (DTI) and Department of Labor and Employment (DOLE) Interim Guidelines on Workplace Prevention and Control of COVID-19, and DOH Department Memorandum No. 2020-220, Interim Guidelines on the Return-to-Work.

In this regard, may we respectfully furnish you with the copy of the approved **Construction Guidelines** (*copy attached*), for your reference. Further, may we also

PHILIPPINE DOMESTIC CONSTRUCTION BOARD
CONSTRUCTION INDUSTRY AUTHORITY OF THE PHILIPPINES
An Attached Agency of the Department of Trade and Industry

CIAP Executive Building Center
[illegible] Quezon City
www.ciap.dti.gov.ph
PDCB@dti.gov.ph

request your kind assistance in disseminating these Construction Guidelines among your stakeholders, including contractors and implementing agencies.

You may also visit CIAP's website at www.ciap.dti.gov.ph for the latest updates and version of these Construction Guidelines.

For questions and clarifications, kindly email PDCB Secretariat at pdcb@dti.gov.ph. Thank you for your usual support.

Sincerely,

DORIS U. GACHO
Executive Director, PDCB

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); **or**

☐ (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document;
and

☐ (c) Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;
and

☐ (d) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

☐ (e) 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**

☐ (f) 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**

☐ (g) Philippine Contractors Accreditation Board (PCAB) License; **or**
Special PCAB License in case of Joint Ventures;
and registration for the type and cost of the contract to be bid; **and**

☐ (h) 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**

(i) 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**

☐ (j) 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

☐ (k) The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the 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; **and**

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

Class "B" Documents

☐ (m) 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

☐ (n) Original of duly signed and accomplished Financial Bid Form; **and**

Other documentary requirements under RA No. 9184

☐ (o) Original of duly signed Bid Prices in the Bill of Quantities; **and**

☐ (p) 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**

☐ (q) Cash Flow by Quarter.

SECTION X

BIDDING FORM

Bid Form for the Procurement of Infrastructure Projects

[shall be submitted with the Bid]

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: **Plaridel Port Development/ Improvement Project, Port of Plaridel (Siain), Quezon**;

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[1] 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

[1] 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 **Plaridel Port Development/ Improvement Project, Port of Plaridel (Siain), Quezon** 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 ALL ON-GOING GOVERNMENT AND PRIVATE CONTRACTS, INCLUDING CONTRACTS AWARDED BUT NOT YET STARTED, WHETHER SIMILAR OR NOT SIMILAR IN NATURE

Name of the Contract or Title Of the Project 1]	Owner's Name and Address	Nature/ Scope of Work 2]	Contractor's Role (in percentage) 3]	Total Contract Value At			Date of Award 5]	Value of Outstanding Works	Estimated Time of Completion	% of Accomplishment		Contract Duration 5]	
				Award	Project Completion	Escalated Value to Present Prices 4]				Planned	Actual	Start	Completed
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 or defined in the contract entered/executed by the parties
2] With special reference to the Scope of Works as described/enumerated in the advertised Invitation To Bid.
3] Indicate 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. Specify the "Escalation Factor" used to escalate the Contract Value from completion date to the advertisement date of the Invitation to Bid per section 23.11.2 (3) of R.A. 9184.
5] State Month and Year.

This Statement shall be supported by:
a) Notice of Award and/or Contract
b) Notice to Proceed

Name of Firm/Applicant _____ Authorized Signing Official _____ Date _____

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

Name of the Contract or Title Of the Project	Owner's Name and Address	Nature/Scope of Work	Contractor's Role and Percentage Of Participation	Total Contract Value At			Date of Award	Value of Outstanding Works	Contract Duration	
				Award	Completion	Escalated Value to Present Prices			Start	Completed

NOTE :

1. **The prospective bidder must have completed an SLCC that is similar to the contract to be bid, and whose value, adjusted to current prices using the PSA consumer price indices, must be at least fifty percent (50%) of the ABC to be bid.**

2. **This Statement shall be supported by:**

   a. Notice of Award and / or Notice to Proceed.
   b. Project Owner's Certificate of Final acceptance issued by the owner other than the Contractor or Constructors Performance Evaluation System (CPES) Final Rating, which must be at least satisfactory.

Name of Firm/Applicant

Authorized Signing Official

Date

EXPERIENCE RECORD ON SIMILARLY COMPLETED PROJECTS

Similar Major Categories of Work 1]	Unit of Measure	Quantity	Title of the Project	Title of the Project	Title of the Project	Title of the Project	Unit of Measure	Quantity
1. Pile Driving Works (Off-shore)	l.m.	2,097	✓					
2. Reinforced Concrete Works	cu.m.	407	✓					
3. Rockworks (50-2,000kg./pc.)	cu.m.	3,282	✓					
4. Placing of Fill Materials	cu.m.	746	✓					
5. Portland Cement Concrete Pavement	sq.m.	295	✓					

NOTE: 1] *Submit the Certificate of Completion/Certificate of Acceptance by the project owner, Final Recapitulation/Bill of Quantities and/or Constructor Performance Evaluation System (CPES) ratings, 1st, 2nd & Final visit (if applicable). Projects with no Certificate of Completion/Acceptance and Recapitulation/Bill of Quantities shall not be considered.*

2] *The Owner's Certificate of Final Acceptance; or the Constructors Performance Evaluation Summary (CPES) Final Rating and/or the Certificate of Completion, must be satisfactory.*

Name of Firm/Applicant _____ Authorized Signing Official _____ Date _____

(Revised Form : September 2012)

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.

LIST OF CONTRACTOR'S PERSONNEL

I hereby declare that the following key personnel enumerated below, with attached resume/bio-data, including valid PRC License, for the various positions / functions, are available for the project applied for:

Position of Key Personnel	Name	No. of Key Personnel	Similar Experience in the Position (Years) 1]	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					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. Minimum qualification requirements: (work experience is similar in nature and complexity to the project to be bid with regard to Registration Particulars of the Contractor's License)

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/Applicant

Authorized Signing Official

Date

REVISED FORM (September 2012)

LIST OF CONTRACTOR'S EQUIPMENT UNITS

I hereby declare that the following equipment listed below which are owned, leased or under purchase agreement are in good operating condition and are available for the duration of the project:

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

1] Indicate if owned or leased as listed in the Checklist/Bidding Documents. For owned equipment, as required, submit proof of ownership (i.e. deed of sale, sales invoice, official receipt). For 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. For newly purchased barge/tugboat, submit Deed of Sale together with an application for Marina Certificate of Ownership duly received/authenticated by Marina with corresponding valid Cargo Ship Safety Certificate. For leased equipment, submit duly notarized copy of lease contract together with a copy of the Marina Owner's (Lessor's) Certificate and valid Cargo Ship Safety Certificate.

2] The unit of each equipment shall be as indicated in the Checklist/Bidding Documents, 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).

Name of Firm/Applicant

Authorized Signing Official

Date

REVISED FORM (January 2011)

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 **Plaridel Port Development/ Improvement Project, Port of Plaridel (Siain), Quezon** 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, 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 **Plaridel Port Development/ Improvement Project, Port of Plaridel (Siain), Quezon** 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, 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 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 **Plaridel Port Development/ Improvement Project, Port of Plaridel (Siain), Quezon** 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, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, 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]

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 : _____

Proposed Project Description : _____

Location : _____

MINIMUM SCOPE OF CONSTRUCTION METHODOLOGY

A. DEMOLITION AND REMOVAL WORKS

1. Demolition & disposal of existing R.C. deck (1,000 sq.m.)
2. Cutting & disposal of existing R.C. Pile up to elevation +1.00m (67 nos.)
3. Cutting & disposal of existing R.C. Pile up to seabed elevation (84 nos.)

B. ROCK CAUSEWAY

1. Excavation of existing seabed (5,170 cu.m.)
2. Supply & placing of concrete (206 cu.m.)
3. Supply & installation of reinforcing steel bars (18,238 kg.)
4. Supply & placing of rocks (6,563 cu.m.)
5. Supply & placing of fill materials (1,491 cu.m.)
6. Supply & placing of aggregate base course (118 cu.m.)
7. Construction of Concrete pavement (589 sq.m.)

C. R.C. PIER

1. Supply & delivery of Steel Pipe Piles (443 m.t.)
2. Handling, pitching & driving of Steel Pipe piles (4,193 l.m.)
3. Splicing of Steel Pipe piles (182 nos.)
4. Cutting of newly driven Steel Pipe piles (91 nos.)
5. Extraction of clogged materials inside SPP (72 cu.m.)
6. Supply & placing of 3,500 psi concrete for SPP & Deck (608 cu.m.)
7. Supply & installation of reinforcing steel bars for SPP & Deck (97,293 kg.)
8. Supply & installation of construction joints (24 l.m.)
9. Supply & installation of Mooring bollards (16 sets)
10. Supply & installation of Rubber dock fenders (16 sets)

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.

_____
Signature
(Authorized Signing Official)

MANPOWER SCHEDULE

Name of Project : _____

Proposed Project Description : _____

Location : _____

MANPOWER (Minimum)	CONTRACT DURATION (_____ Calendar Days)																	
	MONTHLY																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Project Manager																		
Project Engineer																		
Materials Engineer																		
Construction Safety and Health Officer																		
Foreman																		
Specify other applicable positions, ie.:																		
- Carpenter																		
- Steelman																		
- Mason																		
- Electrician																		
- Rigger																		
- Others																		

_____
Signature
(Authorized Signing Official)

EQUIPMENT UTILIZATION SCHEDULE

Name of Project : _____

Proposed Project Description : _____

Location : _____

EQUIPMENT (Minimum)	No. of Units	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

_____
Signature
(Authorized Signing Official)

CASHFLOW BY QUARTER AND PAYMENT SCHEDULE

Name of Project: : ______________________

Proposed Project Description : ______________________

Location : ______________________

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

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.

____
Signature
(Authorized Signing Official)

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]

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	**Name of Bidder/ Authorized Representative** (Signatory's Legal Capacity)
for:	for:
Philippine Ports Authority	**Contractor**

Acknowledgment

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