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 14 : ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL

SCOPE OF WORK

This specification covers the requirements for zinc coating (galvanizing) by the hot-dip process on iron and steel products made from rolled pressed and forged shapes, casting, plates, bars and strips.

This specification covers both fabricated and un-fabricated products, for example, assembled steel products, structural steel fabrications, large tubes already bent or welded before galvanizing, and wire work fabricated from uncoated steel wire. It also covers steel forgings and iron castings incorporated into pieces fabricated before galvanizing or which are too large to be centrifuged (or otherwise handled to remove excess galvanizing bath metal).

MATERIAL REQUIREMENTS

STEEL OR IRON

The specification, grade or designation, and type and degree of surface contamination of the iron or steel in articles to be galvanized shall be supplied by the purchaser to the hot-dip galvanizer prior to galvanizing.

The presence in steels and weld metal, in certain percentages, of some elements such as silicon, carbon and phosphorus tends to accelerate the growth of the zinc-iron alloy layer so that the coating may have a matte finish with a little or no outer zinc layer.

EXECUTION

FABRICATION

The design and fabrication of the product to be galvanized shall be in accordance to the plans and specifications. ASTM Practices A 143, A 384 and A 385 provide guidance for steel fabrication for optimum hot-dip galvanizing and shall be complied with in both design and fabrication.

CASTINGS

The composition of heat treatment of iron and steel castings shall conform to specifications designated by the purchaser. Some types of castings have been known to show potential problems being embritttled during normal thermal cycle of hot-dip galvanizing. The requirements for malleable iron castings to be galvanized are stipulated in ASTM specification A 47.

ZINC

The zinc used in the galvanizing bath shall conform to ASTM Specification B 6. If a zinc alloy is used as the primary feed to the galvanizing bath, then the base material used to make that alloy shall conform to ASTM Specification B 6.

BATH COMPOSITION

The molten metal in the working volume of the galvanizing bath shall contain not less than an average value of 98.0% zinc by weight.

COATING PROPERTIES

Table 1 – Minimum Average Coating Thickness Grade by Material Category

Material Category	All Specimens Tested Steel Thickness Range (Measured), mm (in.)				
	< 1/16 (<1.6)	1/16 to < 1/8 (1.6 to < 3.2)	1/8 to < 3/16 (3.2 to 4.8)	> 3/16 to < 1/4 (> 4.8 to < 6.4)	≥ 1/4 (≥ 6.4)
Structural Shapes & Plate	45	65	75	85	100
Strip and Bar	45	65	75	85	100
Pipe and Tubing	45	45	75	75	75
Wire	35	50	60	65	80

COATING THICKNESS

The average thickness of coating for all specimens tested shall conform to the requirements of Table 1 for the categories and thickness of the material being galvanized. Minimum average thickness of coating for any individual specimen is one coating grade less than that required in Table 1. Where products consisting of various material thicknesses or categories are galvanized, the coating thickness grades of each thickness range and material category of material shall be shown in Table 1. The specification of coating thickness heavier than those required by Table 1 shall be subject to mutual agreement between the galvanizer and Engineer.

For articles whose surface area is greater than 100,000 mm^2 (160 in.^{2}) (multi-specimen articles), each test article in the sample must meet the appropriate minimum average coating thickness grade requirements of Table 1. Each specimen coating thickness grade comprising that overall average for each test article shall average not less than one coating grade below that required in Table 1.

For articles whose surface area is equal to or less than 100,000 mm^2 (160 in.^{2}) (single-specimen articles), the average of all test articles in the sample must meet the appropriate minimum average coating thickness grade requirements of Table 1. For each test article, its specimen coating thickness shall not be less than one coating grade below that required in Table 1.

No individual measurement or cluster of measurements at the same general location on a test specimen shall be cause for rejection under this specification provided that when those measurements are averaged with the other dispersed measurements to determine the specimen coating thickness grade for that specimen, the requirements of the above specifications as appropriate are met.

The coating thickness grades in Table 1 represent the minimum value obtainable with a high level of confidence for the ranges typically found in each material category. While most coating thicknesses will be in excess of those values, some materials in each category may be less reactive (for example, because of chemistry or surface condition) than other materials of the steel category spectrum. Therefore, some articles may have a coating grade at or close to the minimum requirements shown in Table 1. In such cases, the precision and accuracy of the coating thickness measuring technique should be taken into consideration when rejecting such articles for coating thickness below that is required by this specification.

FINISH

The coating shall be continuous (except as provided below), and as reasonably smooth and uniform in thickness as the weight size and shape of the item. Except for local excess coating thickness which would interfere with the use of the product or make it dangerous to handle (edge tears or spikes), rejection for non-uniform coating shall be made only for plainly visible excess coating not related to design factors such as holes, joints, or special drainage problems. Since surface smoothness is a relative term, minor roughness that does not interfere with the intended use of the product, or roughness that is related to the as-received (un-galvanized) surface condition, steel chemistry to zinc shall not be grounds for rejection.

Surfaces that remain uncoated after galvanizing may be renovated in accordance with the methods in ASTM Practice A 780 provided that the following conditions are met:

1. Each area subject to renovation shall be 25mm (1 in.) or less in its narrowest dimension.

2. The total area subject to renovation on each article shall be no more than ½ of 1% of the accessible surface area to be coated on that article, or 22,500mm^2 (36 in.^{2}) per ton of piece weight, whichever is less. Inaccessible surface areas are those which cannot be reached for appropriate surface preparation and application of repair materials as described in ASTM Practice A 780.

3. The thickness of renovation shall be that is required by the thickness grade for the appropriate material category and thickness range in Table 1 in accordance with the coating thickness requirements, except that for renovation using zinc paints, the thickness of renovation shall be 50% higher than that required by table 1, but not greater than 0.0254mm (4.0 mils).

4. When areas requiring renovation exceed the criteria previously provide, or are inaccessible for repair, the coating shall be rejected.

THREADED COMPONENTS IN ASSEMBLIES

The zinc coating on external threads shall not be subjected to a cutting, rolling or finishing tool operation, unless specifically authorized by the purchaser. Internal threads may be tapped or retapped after galvanizing. Coatings shall conform to the requirements of ASTM Specification A 153/A 153 M.

APPEARANCE

Upon shipment from the galvanizing facility, galvanized articles shall be free from uncoated areas, blisters, flux deposits and gross dross inclusions. Lumps, projections, globules or heavy deposits of zinc which will interfere with the intended use of the material will not be permitted. Plain holes of 12.5mm (1/2 in.) diameter or more shall be clean and reasonably free from excess zinc. Marks in the zinc coating caused by tongs or other items used in handling the article during the galvanizing operation shall not be cause for rejection unless such marks have exposed the base metal, and the bare metal areas exceed the criteria provided in number 1 and 2 of Subsection "Finish".

Whenever dross is present in a form other than finely dispersed pimples in the coating and is present in such amount as to be susceptible to mechanical damage, it will be considered as "gross".

ADHERENCE

The zinc coating shall withstand handling consistent with the nature and thickness of the coating and the normal use of the article, without peeling or flanking. Although some material may be formed after

galvanizing, in general the zinc coating on the articles covered by this specification is too heavy to permit severe bonding without damaging the coating.

SAMPLING

A lot is a unit of production or shipment from which a sample may be taken for testing. Unless otherwise agreed upon between the galvanizer and the purchaser, or established within this specification, the lot shall be as follows:

1. For testing at a galvanizer's facility, a lot is one or more articles of the same type and size comprising a single order or a single delivery load, whichever is smaller, or any number of articles identified as a lot by the galvanizer, when these have been galvanized within a single production shift and in the same bath.

2. For test by the purchaser after delivery, the lot consists of the single order or the single delivery load, whichever is smaller, unless the lot identify, established in accordance with the above, is maintained and clearly indicated in the shipment by the galvanizer.

The method of selection and number of test specimens shall be agreed upon between the galvanizer and the purchaser. Otherwise, the test specimens shall be selected random from each lot. In this case, the minimum number of specimens from each lot shall be as follows:

Number of Pieces in Lot	Number of Specimens
3 or less	All
4 to 500	3
501 to 1,200	5
1,201 to 3,200	8
3,201 to 10,000	13
10,001 and over	20

A test specimen which fails to conform to any requirement of this specifications shall not be used to determine the conformance to other requirements.

TEST REQUIREMENTS

Magnetic Thickness Measurements:

The thickness of the coating shall be determined by magnetic thickness gauge measurements in accordance with ASTM Practice E 376. For each specimen, five or more measurements shall be made at points widely dispersed throughout the volume occupied by the specimen so as to represent as much as practical, the entire surface area of the test specimen. The average of the five or more measurements thus made for each specimen is the specimen coating thickness.

For articles whose surface area is greater than 100,000 mm^2 (160 in^2), in the average of the three specimen coating thickness grades comprising each test article is the average coating thickness for that test article. A specimen must be evaluated for each steel category and material thickness within the requirements for each specimen of the test article

For articles whose surface area is equal to or less than 100,000 mm^2 (160 in^2), the average of all specimen coating thickness grades is the average coating thickness for the sample.

The use of magnetic measurement method is appropriate for larger articles, and may be appropriate for smaller articles when such is practical using ASTM Practice E 376.

Stripping Method

The average weight of coating may be determined by stripping a test article, a specimen removed from a test article, or group of test articles in the case of very small items such as nails, etc., in accordance with Test method ASTM A 90/A 90m. The weight of coating per unit area thus determined is converted to equivalent coating thickness values in accordance with Table 2, Coating Thickness Grade (rounding up or down as appropriate). The thickness of coating thus obtained is the test article coating thickness, or in the case of a specimen removed from a test article, is the specimen average coating thickness.

Table 2 – Coating Thickness Grade [A]

Coating Grade	mils	oz/ft^2	µm	g/m^2
35	1.4	0.8	35	245
40	1.4	1.0	45	320
50	2.0	1.2	50	355
55	2.2	1.3	55	390
60	2.4	1.4	60	425
65	2.6	1.5	65	460
75	3.0	1.7	75	530
80	3.1	1.9	80	565
85	3.3	2.0	85	600
100	3.9	2.3	100	705

[A] Conversions in Table 2 are based on the metric thickness value equivalents from the next earlier version, using conversion factors consistent with Table X 2.1 in Specification A 653/A 653M, rounded to the nearest 5 µm (0.0002 in.). The conversion factors used are: mils = µm x 0.03937; oz/ft^2 = µm x 0.002316; g/m^2 = µm x 7.067.

Weighing Before or After Galvanizing

The average of coating may be determined by weighing articles before and after galvanizing, subtracting the first weigh from the second and dividing the result by the surface area. The first weigh shall be determined after pickling and drying, and the second after cooling to ambient temperature. The weight of coating per unit area thus determined is converted to equivalent coating thickness values according to Table 2 (rounding up or sown as

appropriate). The thickness of coating thus obtained is the test article coating thickness.

Microscopy

The thickness of coating may be determined by cross-sectional and optical measurement in accordance with ASTM Test Method B 487. The thickness thus determined is a point value. No less than five such measurements shall be made at locations on the test article which are as widely dispersed as practical, so as to be representative of the whole surface of the test article. The average of no less than five such measurement is the specimen coating thickness.

Adhesion

Determine adhesion of the zinc coating to the surface of the base metal by cutting or prying with the point of a stout knife, applied with considerable pressure in a manner tending to remove a portion of the coating. The adhesion shall be considered inadequate if the coating flakes off in the form of a layer of the coating so as to expose the base metal in advance of the knifepoint. Do not use testing carried out at edges or corners (points of lowest coating adhesion) to determine adhesion of the coating. Likewise, do not use removal of small particles of the coating by paring or whittling to determine failure.

Embrittlement

Test for embrittlement may be made in accordance with ASTM Practice A 143

The galvanized article should withstand a degree of bending substantially the same as the ungalvanized article. Flaking or spalling of the galvanized coating is not be constructed as anembrittlement failure.

Inspection, Rejection and Retest

The material shall be inspected at the galvanizer's plant prior to shipment. However, by agreement the purchaser may make the tests which govern the acceptance or rejection of the materials in his own laboratory or elsewhere.

When inspection of materials to determine conformity with the visual requirements of Subsection "Finish" warrants rejection of a lot, the galvanizer may sort the lot and submit it once again for acceptance after he has removed any nonconforming articles and replace them with conforming articles.

Materials have been rejected for reasons other than embrittlement may be stripped and regalvanized, and again submitted for inspection and test at which time they shall conform to the requirements of this inspection.

Transport and Storage

Galvanized components shall, wherever possible, be transported and stored under dry, well-ventilated conditions to prevent the formation of wet storage staining.

Either zinc phosphate or chromate passivation treatment after galvanizing may be used to minimize the wet storage staining which may occur on articles unable to be stored in dry, well-ventilated conditions.

Provided the coating thickness complies with the requirements of Subsection "Coating Thickness", no further remedial action is required to the stained areas.

ITEM 15 : PILING WORKS (SPP)

SCOPE OF WORK

This section covers the minimum requirements for the fabrication, hauling, spotting, driving and finishing of all foundation piles to be used as containment for the proposed pier.

The Contractor may however, adopt, in addition to this minimum requirements additional provisions as may be necessary to insure the successful prosecution of the work related to the said undertaking.

METHOD STATEMENT

Before the commencement of any piling works, the Contractor shall submit (allowing sufficient time for consideration) to the Engineer for approval a Safety Policy and a Method Statement which shall include the following information:

1. Program of Works detailing sequence and timing of individual portions of works.

2. Maximum proposed lead at any stage of driving between a pile and its neighbor and the limitations of same if hard driving is encountered.

3. Contingency plan in the event of encountering obstructions or reaching driving refusal to minimize disruption/delay especially when using pitch and drive methods.

MATERIAL REQUIREMENTS

STEEL PIPE PILES

Steel tubular piles required under this heading may either be fluted or plain, tapered or cylindrical, seamless or welded type or as indicated in the drawing conforming to the requirements of ASTM A 252, equal or better. Minimum shell thickness shall be as indicated in the drawings.

Manufacturing processes, grades and test requirements shall conform to the requirements of ASTM A 252. Other materials, equal or better, than this standard may be allowed upon approval of the implementing agency.

Type of Test		Requirements
Chemical Composition	-	ASTM A252, ASTM A751
Mechanical/ Tensile Test	-	ASTM A252, ASTM A370
Physical /Test	-	ASTM A252

REINFORCING BAND AND BACKING CYLINDER PLATE

Manufacturing processes, grades and test requirements shall conform to the requirements of ASTM A 252. Other materials, equal or better, than this standard may be allowed upon approval of the implementing agency.

CONCRETE AND REINFORCEMENT WORKS

Concrete and reinforcement works for filler of steel pipe piles, concrete jacket and pile cap shall be in accordance with the Section "Reinforced Concrete" where the compressive strength of concrete at 28 days and yield strength of reinforcement shall be 24MPa (3,500 psi) and 276MPa (40 000psi) respectively.

PROTECTIVE COATING

GENERAL

The following abbreviations and definition of terms are used in this Specification:

DFT	Dry Film Thickness
ISO	International Organization for Standardization
NACE	National Association of Corrosion Engineers
SSPC	Steel Structures Painting Council
µm	Micron
WFT	Wet Film Thickness

Definition of Terms

Company Representative	A duly appointed representative of the facility owner
"Shall"	A mandatory requirement of compliance
Spot Blast	Blasting operations carried out to remove localized corrosion, or damage, to otherwise sound coatings
Stripe Coat	Brush applied coating, usually to edges, welds, and other areas susceptible to coating breakdown
Substrate	Base material over which a protective coating is applied
Whip Blast	Light blasting carried out to abrade a surface, with minimal removal of substrate

CODES, STANDARDS AND TEST METHODS

Materials and workmanship shall comply with any requirements of any Acts or Regulations of any Statutory Authority having jurisdiction over the works. Occupational Health & Safety and Environmental legislations relevant to the works must be adhered to.

Unless noted otherwise, all works shall be performed in accordance with the current version of the relevant global standard / test method (including ASTM, ISO, NACE & SSPC), including (but not limited to) those listed below:

ASTM D4285	Indicating Oil or Water in Compressed Air
ISO 8501	Preparation of steel substrates before application of paints and related products –Visual assessment of surface cleanliness
ISO 8502	Preparation of steel substrates before application of paints and related products – Tests for the assessment of surface cleanliness
ISO 8503	Preparation of steel substrates before application of paints and related products – Surface roughness characteristics of blast-cleaned steel substrates
ISO 8504	Preparation of steel substrates before application of paints and related products – Surface preparation methods
ISO 9000 Series	Quality Management Systems Series

NACE SP0188	Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates
SSPC-SP1	Steel Structures Painting Council (SSPC) – Solvent cleaning
SSPC-SP6	Commercial Blast Cleaning
SSPC-SP10	Steel Structures Painting Council (SSPC) – Near-white blast cleaning
SSPC Vis 1	Steel Structures Painting Council (SSPC) –Visual standard for abrasive blast cleaned steel

WORKMANSHIP

Application

All surface preparation and coating application activities shall be carried out by suitably trained operators,
preferably with a minimum of two years' practical experience with these tasks.

The Contractor shall ensure that the supervision of application staff and all quality inspections are carried out by a suitably qualified specialist with a minimum of 3 years industry experience.

Quality Assurance

The Contractor shall compile appropriate Inspection & Test Plans for each part of the surface preparation and coating application works. These shall be submitted to the Company Representative for approval prior to the works commencing.

The Company Representative reserves the right to appoint a third party to conduct quality inspections of the coatings applied under this Specification. These inspections are in addition to those required by the Contractor. These inspections do not remove any of the Contractor's obligations under this Specification.

Non Conformances

Any work which does not conform to the requirements of this Specification shall be repaired to the satisfaction of the Company Representative. Such work may include complete removal of the non-conforming coating, surface preparation and application of the new coating system.

Such rectification work will be at the expense of the Contractor.

Work Method

Where possible, surface preparation and coating application shall be performed when all fabrication, including attachment of secondary steelwork and brackets, is complete. Where this is not possible, work method and inspection must ensure all exposed surfaces are treated in accordance with this specification.

Surfaces which are not to be painted shall be protected from damage and overspray. These surfaces include, but are not limited to:

- Stainless steel
- Machined surfaces
- Gauge faces

Access to the Work Surfaces

Access to the work surface must be suitable so as to allow full and proper treatment of all surfaces to be coated under this specification. Scaffolding, if necessary, shall be erected in accordance with local legislative requirements. Care shall be taken to minimize damage to coated surfaces during manipulation of scaffolding / access equipment. Any damage to the applied coating shall be repaired to the full requirement of this specification.

Protection of Environment

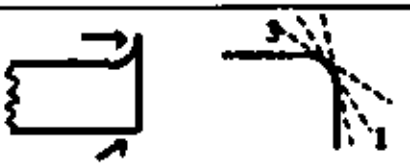
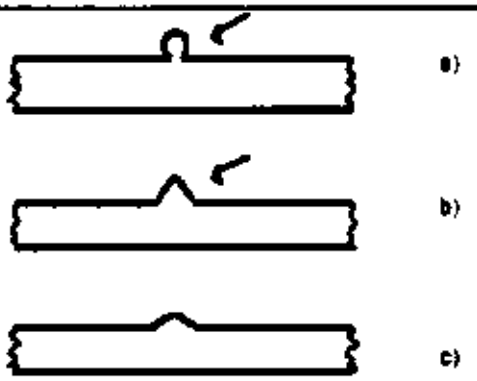
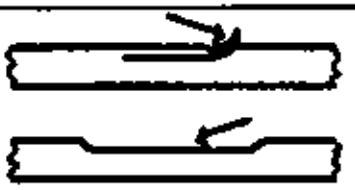
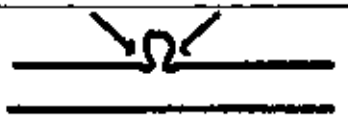
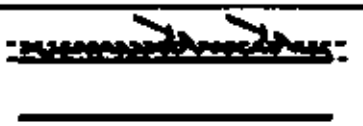
All work carried out under this specification shall be performed in accordance with local legislative and site specific requirements. Care shall be taken to eliminate impact on adjacent work areas from noise, dust, overspray and other activities. Paint, thinners, rags, empty paint cans and other refuge generated shall be disposed of thoughtfully and in accordance with local legislative requirements.

SURFACE PREPARATION

General

Prior to surface preparation activities, the steel surface to be coated shall be thoroughly cleaned to remove all oil, grease, fats, drilling and cutting compounds, and other contaminants in accordance with ISO 8504, or SSPC-SP1. Soluble salts shall be removed by thorough water washing. Where a chloride level of greater than 50 mg/m² (or less if recommended by the protective treatment supplier) as determined by ISO 8502, the substrate shall be wet abrasive blasted, high-pressure water jetted, or otherwise washed, and then reblasted. The substrate shall then be retested for chloride salt contamination, and the cleaning / reblasting process shall be repeated until the chloride level is shown to be less than the required value.

All sharp edges, corners, holes, feathering at saw cuts, or sharp irregularities shall be ground to a minimum radius of 2.0mm, where specified on the project engineering drawing. Burrs, surface shell, slag, weld spatter and other surface defects such as cracks, laminations and slag inclusions shall be repaired before the commencement of blast cleaning activities. Temporary welds shall be ground to a flush finish. Weld porosity and associated defects shall be removed by grinding and repaired/filled with weld. Please see table below for surface imperfections.

SHARP EDGE	Edges should be treated to a rounded radius of minimum 2mm, or subjected to three pass grinding or equivalent.	
WELD SPATTER	1. Remove spatter observed before blasting by grinder, chipping hammer etc 2. For spatter observed after blasting: a) Remove with chipping hammer/scraper etc b) Where spatter is sharp, use disc sander or grinder until obtuse c) Obtuse spatter – no treatment required	
PLATE LAMINATION	Any lamination to be removed by grinder or disc sander	
UNDERCUT	Where undercut is to a depth exceeding 1mm and a width smaller than the depth, repair by welding or grinding may be necessary	
MANUAL WELD	For welding bead with surface irregularity or with excessive sharp edges, remove by dise sander or grinder	
GAS CUTSURFACE	For surfaces of excessive irregularity, remove by disc sander or grinder	

Abrasive Blast Cleaning

Blast cleaning operators shall wear approved safety clothes and equipment at all times during the blast cleaning process. Helmets shall meet all required statutory requirements and guidelines.

Work shall NOT be performed in the following circumstances:
•When the relatively humidity of the surrounding air is above 85%.

Unless otherwise stated herein, all surfaces to be coated shall be abrasive blast cleaned to Sa2½ (in accordance with ISO 8501-1); or in accordance with SSPC-SP10.

Unless otherwise stated herein, a surface profile of 50-75 microns (2 - 3 mil) shall be achieved as measured by ISO 8503. The resultant surface shall have a sharp angular profile.

The use of silica sand, flint, or ilmenite abrasives shall NOT be permitted. Steel shot alone shall not be used but a mix of steel shot and grit may be used.

The type and size of abrasive, the equipment and the procedure adopted shall be chosen to ensure the required degree of cleanliness and surface profile is achieved. The blasting medium shall be

free of organic material and shall have a chloride salt content not greater than 50 ppm. The compressed air supply used for blasting shall be completely free of water and oil. The design of the compressed air system shall incorporate the appropriate number of serviceable in-line separators and traps which shall be cleaned and drained on a regular basis.

Care shall be exercised to ensure spent blast media does not impinge onto soft or freshly applied coating when blast cleaning in close proximities (e.g. on-site repair).

Welding spatter, slivers, surface shell, cracks, lamination, deep pitting and other surface defects detrimental to the performance of the protective coating system exposed by the blast cleaning process shall be removed by grinding or other approved method. Where necessary these defects shall be welded closed after grinding, and the repair ground to blend in with the adjacent surface. The repair area shall be re-blasted to re-establish the correct surface condition.

Immediately after completion of the blast cleaning process, the surface shall be dusted, vacuumed or blown down with clean dry compressed air to remove spent abrasive. Special attention shall be given to corners, intersects and horizontal areas where settlement of dust is likely to occur.

Where site abrasive blasting is required over water, preventative measures shall be employed to protect the environment from contamination by spent abrasive and blast debris. All used blast materials shall be disposed off-site in a statutory approved dumping facility.

Power Tool Cleaning (for small areas/ repair only)

Power Tool cleaning operators shall wear approved safety clothes and equipment at all times during the power tool cleaning process.

Work shall NOT be performed in the following circumstances:
- If the surface is wet, or likely to become wet after power tool and before primer application.
- On surface where the formation of condensation is likely i.e. where the surface temperature of steel is less than 3°C above dew point.
- When the relatively humidity of the surrounding air is above 85%.

Unless otherwise stated herein, all carbon steel surfaces shall be power tool cleaned using an orbital sander with cup brush followed with disc sanding pad (flap disc) having grit size ideally ranging from 80- 120, to create profile (roughness). Care should be exercised so as to not over grind the carbon steel. The objective is to leave the metal bare and generate surface profile. A bare metal power-tool cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, rust, coating, oxides, mill scale, corrosion products, and other foreign material, Slight residues of rust and coating are permitted to remain in the lower portions of pits if the original surface is pitted. Acceptable variations in appearance that do not affect surface cleanliness as defined earlier include variations caused by type of steel, original surface condition, thickness of the steel, weld metal, mill or fabrication marks, heat treating, heat-affected zones, or the texture/features associated with the use of a particular power tool.

Immediately after completion of the power tool cleaning process, the surface shall be dusted, vacuumed or blown down with clean dry compressed air to remove debris from removed coatings, corrosion etc. Special attention shall be given to corners, intersects and horizontal areas where settlement of dust is likely to occur.

Care of Prepared Surfaces

The application of the prime coat to the prepared surface shall commence within four (4) hours of the commencement of the blasting process, and before any deterioration of the prepared surface occurs. The time lapse between blasting and primer application shall be recorded on the Contractor's Inspection report forms.

Blast cleaned surfaces shall be kept free of any contamination and shall not be touched by bare hands or contaminated gloves.

Any prepared surface which becomes contaminated shall be re-blasted to the specified visual condition above.

APPLICATION OF COATINGS

General

Coating application operators shall wear approved safety clothes and equipment at all times during the blast cleaning process. Respirators and associated equipment shall meet all required statutory requirements and guidelines.

Work shall NOT be performed in the following circumstances:
- If the surface is wet, or likely to become wet after blasting and before primer application.
- On surface where the formation of condensation is likely i.e. where the surface temperature of steel is less than 3°C above dew point.
- When the relatively humidity of the surrounding air is above 85%.
- When the ambient temperature, or the surface temperature, exceeds 50°C or is less than 5°C.

Immediately prior to paint application, the surface shall be dusted, vacuumed or blown down with clean dry compressed air to remove spent abrasive. Special attention shall be given to intersects and horizontal areas where settlement of dust is likely to occur.

Each coat shall be free of sags, runs, mud cracking, wrinkling, fat edges, blisters, pinholes, holidays, dry spray, entrapped foreign bodies, heavy brush marks and other similar defects consistent with a finish for industrial applications. Prior to the commencement of work, the Contractor shall produce a "reference area" for approval by the Company Representative. The reference area shall be representative of the type of surfaces being treated. Once approved by the Company Representative the reference area shall be used to determine acceptable finish quality.

All ventilation equipment required during application shall be left operating until cure of the applied coating is achieved.

Adhesion of all coats shall be sound throughout. Coatings with poor adhesion shall be removed and re- instated at the cost of the Contractor.

The Contractor acknowledges that variations in weather conditions affects minimum and maximum recoat times of coating material, and that this is taken into account when planning coating operations.

Materials

All primers and final coat shall be of the approved make, type and colour. All coats in the system applied shall be from coating manufacturer only.

Where two component paint is used, it shall be mixed at the site of application in the manner prescribed by the coating manufacturer. Mixed paint remaining unused after the coating manufacturer's prescribed pot life shall be discarded and removed from the site of application.

All colouring or tinting of paint shall be performed by the coating manufacturer.
Stripe Coating

All external edges shall be stripe coated (either spray or brush) prior to spray application of the full coat. All welds, crevices, holes, corners, and other difficult access areas shall be stripe coated by brush painted prior to spray application of the full coat. All nuts and bolts which have been specified to be painted, or which the Company Representative has instructed to be painted, shall be brush painted prior to spray application of the full coat. This process shall be repeated where necessary to ensure the correct film thickness is achieved over these areas.

Brush and Roller Application

Application by brush or roller shall be limited to small areas only. Multiple application of each coat in the system will be required to achieve the required dry film thickness. A uniform method of application shall be adopted when painting large areas. The application direction shall be towards already painted areas so as to maintain a wet edge and minimize paint joint buildup.

The paint shall be spread evenly over the entire area with the minimum practical amount of brushing. The method of application and type of brush used shall be suitable to the paint specified and the surface being painted.

The method of "laying off" shall be suitable to the paint specified and shall be executed with the minimum amount of brush marking.

Measurement of Film Thickness

Irrespective of the method of application, the Contractor shall ensure that frequent measurements of wet film thickness are taken throughout the application process. An approved wet film gauge shall be used. The level of thinner additional shall be taken into account when measuring wet film thickness to ensure the correct dry film thickness is achieved.

After each coating has cured, the dry film thickness shall be tested and recorded by the Contractor. Inspection regime and acceptance of results shall be in accordance with ISO 2808.

The minimum dry film thickness considered acceptable is that specified within the given coating system, where the measurement has been determined according to the rules in ISO 2808.

The maximum dry film thickness considered acceptable is dependent on products and systems being applied, and should be determined in consultation with the coating manufacturer.

Multiple Coat Applications

The existing surface shall be treated in accordance with Section General of the Application of Coatings of this Specification. Ensure the previously coated surface is free of water, moisture, dust and dirt immediately prior to application of the successive coat.

Successive coats shall be applied only under the following conditions:
- The surface is clean and dry.
- The coating manufacturer's stated minimum recoat time has elapsed, and the maximum recoat time has not been exceeded. If the maximum recoat time has been exceeded, then pre-treatment of the surface shall be in accordance with the coating manufacturer's recommendation.
- Damaged and non-conforming areas in the previous coating have been made good.

Transport and Handling

Particular care shall be taken to avoid damage to coatings in handling and transport. Coated items shall not be handled until the coating has cured in accordance with the manufacturer's instructions. Coated items shall be handled and transported in a manner that will not chip, abrade or otherwise damage the finished coatings. All slings, lifting devices, dunnage, packing, tie-downs, and the like, shall be of a type that is designed to achieve this end.

No sign writing, stenciling, or marking whatsoever shall be applied to painted surfaces of plant, machinery and equipment unless specifically approved by the Company Representative. Such markings shall be compatible with the specified coating system.

Rectification and Touch-up Painting

Surfaces where the paint coating has been damaged or marked in any way shall be touched up or repainted in accordance with the coating manufacturer's instructions, this Specification, and as otherwise approved by the Company Representative. Repairs performed after installation require special attention to ensure blast media, paint overspray, fumes and other contaminants, do not affect adjacent work areas.

The treatment shall be:
• Pre-clean the damaged area in accordance with Section General of Surface Preparation on this Specification.
• Remove the damaged coating back to a sound adherent surface in accordance with Section Abrasive Blast Cleaning of Surface Preparation on this Specification.
• Spot abrasive blast clean the damaged area
• Feather back the repair area by a minimum 50mm overlap by sanding or sweep blasting.
• Clean surface to remove dust.
• Build up the repair area using the same type of paints and same dry film thickness as were originally specified in the appropriate section of this Specification.

INSPECTION AND TESTING

Initial Inspection

The procedure associated with the surface preparation and application of each coating shall, in the first instance, be carried out in the presence of the Contractor's site supervisor, the Company Representative or any other technical representative.

Once the procedure for each stage of the operation has been witnessed and approved, these procedures shall then apply to all similar operations unless subsequently varied by the Company Representative. Work subsequently identified as being carried out using procedures not previously approved shall be rejected or improved at the sole discretion of the Company Representative.
The Contractor shall give the Company Representative a minimum of five (5) working days' notice of the intention to paint the steel work.

Contractor Inspection

The Contractor shall ensure that all work is inspected and appropriate testing carried out progressively to ensure that it is in accordance with the specified requirements. Inspection and testing records shall be maintained on a daily basis. As a minimum, these reports shall include appropriate information concerning the following:

- Job identification;
- Surface preparation performed and equipment used;

- Surface profile measurement;
- Coating applied and equipment used;
- Material used, batch number, colour, mix ratio and thinner;
- Application details including which coat was applied, wet film thickness and dry film thickness of each coat;
- Weather conditions including air temperature, surface temperature, relative humidity, dew point, wind conditions and general weather conditions. These measurements shall be taken immediately prior to surface preparation and application work, and then every four (4) hours, or whenever a change in the weather conditions is apparent.

Inspection & Test Plans (ITP) shall be compiled and submitted to the Company Representative prior to any work commencing. In addition, the Contractors facility and inspection records shall be made available to the Company Representative for inspection of the works at any time during the performance of the contract.

Inspection by Company Representative

Steelwork will be inspected by the Company Representative at each stage of the coating operation in this case, after surface preparation, prior to application of each coat, and following final topcoat application. Additional inspection will also be conducted after any touch up coats that may be required.

The Company Representative may, at their discretion, vary the frequency of inspection. This may involve the waiver of inspection for a specific step in the operation. Such a waiver shall not be deemed as the precedent to determine the frequency of any future inspection.

Inspection performed by the Company Representative, as well as any waiver of inspection, shall not relieve the Contractor of the obligation to perform their own supervision and inspection of surface preparation and coating application operations as required by this Specification.

Test Methods

The following, but not limited to, test methods shall be used for inspection of the surface preparation and coating application operations:

Compressed Air Quality

Prior to using compressed air, the quality of air downstream of the separator shall be tested in accordance with ASTM D4285. The test shall be performed at the beginning of each shift and at four (4) hourly intervals. The test also shall be made after any interruption of the air compressor operation or as required by the Company Representative. The air shall be used only if the blotter test indicates no visible contamination, oil, or moisture. If contaminants are evident, the equipment deficiencies shall be corrected and the air stream shall be retested. Separators shall be bled continuously. All lines shall be tested individually prior to use. Surfaces which are determined to have been blasted, blown down, or applied using contaminated air shall be re- cleaned to remove oil, grease, and contaminants and new coatings applied using clean air.

Surface Profile

Surface profile shall be tested after every blasting operation. Surface profile shall be measured in accordance with ISO 8503. The tape shall be included in the test reports for future reference.

Salt Contamination Test (Surface)

Surface Salt Contamination Test on surface shall be tested after every blasting operation. Test method in accordance with ISO 8502-6 and 9 results shall be recorded, value shall be 10 micrograms/cm2 or below.

Dust Assessment Test

Dust contamination on substrate prior to application of primer and subsequent coats shall be tested in accordance with ISO8502-3, dust quantity must be less than or equal to Class 2 of ISO 8502-3 Dust Quantity Rating. Test results shall be included in the test reports for future reference.

Wet Film Thickness

Wet film thickness shall be tested during the application operation of all coats in any given coating system. Wet film thickness shall be measured in accordance with ISO 2808.

Dry Film Thickness

Dry film thickness shall be tested following application of each coat within the system, and following application of the final coat. Dry film thickness shall be measured in accordance with ISO 2808. An electronic gauge (Elcometer 345 or similar) shall be used. Calibration of the gauge shall be performed weekly or as required using certified calibration plates. Refer Section 8.6 for acceptance criteria details.

Continuity "Holiday" Testing

Steelwork shall be fully tested for holidays and pinholes. Since thickness is more than 500 microns, High Voltage (Spark) Holiday Test based on NACE SP0188-2006 Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates shall be used.

PROTECTIVE COATING SYSTEMS

	Product Name	Coat Type	Site OR Shop	Application Method	VS %	WFT micron	DFT micron	TSR*1 m2/l	Overcoating Interval at 25C Min - Max	Pot Life at 25C	Thinner
1	Interzone 954 Subsea, Abrasion Resistant and Splash Zone -Modified Epoxy	Full Coat	Shop/ site	Airless Spray, Brush, Roller	85	471	400	1.7	5.5 Hr - 7 D	45 Mir	GTA220
2	Interzone 954 Subsea, Abrasion Resistant and Splash Zone -Modified Epoxy	Full Coat	Shop/ site	Airless Spray, Brush, Roller	85	471	400	1.7	5.5 Hr - 7 D	45 Mir	GTA220
							800				

TSR*1 – Theoretical Spreading Rate.

WELDING REQUIREMENTS

The welding material used for the production of steel piles by circumferential welding of steel pile or in the attachment of accessories shall have a tensile strength not less than the following test standards.

JIS Z 3211 - Covered Electrodes for Mild Steel

JIS Z 3213 - Covered Electrodes for High Tensile Strength Steel

JIS Z 3312 - MAG Welding Solid Wires for Mild

JIS Z 3313	-	Flux Cored Wives for Gas Shielded and self-shielded Metal Arc Welding of Mild Steel, High Strength Steel and Low Temperature Service Steel
JIS Z 3352	-	Submerged Arc Welding Fluxes for Carbon Steel and Low Alloy Steel

EXECUTION

MARKING

The pile shall be marked on with durable paint indicating:

1. Serial Number, marked close to both ends
2. Date of Arrival, marked same as (1)
3. Length of pile, marked same as (1)
4. Meters mark in two faces, throughout the length

DOCUMENTS TO BE SUBMITTED

1. Steel Pipe manufacturing plan (Steel pipe production plan, welding method, welding material, production location, production method, transportation, etc.)
2. Design plan
3. Manufacturing process
4. Shipment method and stacking plan
5. Steel pipe inspection certificate
6. Size inspection record
7. Radiographic Test record

STEEL PIPE PILES

The Contractor shall submit to the Engineer three (3) copies of test reports by the approved steel mill certifying that the steel pipe pile meets the requirements specified in these technical specifications.

PILE SPLICING

General Provision

1. The alignment of piles shall be plumb and the length of upper and lower segment shall be in accordance in the approved plans.
2. Lower segment of piles should be spliced with the upper segment piles prior to the conduct of actual driving.
3. The splice shall be embedded at least 4m from the design depth elevation.

4. Splice welding shall conform to the welding requirements of this section.

5. The welder shall be accredited by TESDA.

REINFORCED CONCRETE

The requirements regarding testing of concrete and reinforcement used in the concrete filler and cage bars of steel pipe piles shall be in accordance with Section "Reinforced Concrete".

STORAGE AND HANDLING

1. Piles may be stored in open air but on wooden sleepers to be placed in a manner so as not to cause excessive bending.

2. Piles shall be stacked on a stable yard and shall not be stacked more than three (3) tiers high.

3. All piles shall be carefully lifted at the location of the lifting points as indicated in the Drawings. Other practical and convenient methods may be used subject to the approval of the Engineer.

DRIVING OF PILES

A diesel or hydraulic pile hammer shall be used for driving the steel pipe piles.

The required weight of ram for the diesel pile hammer 2.5 tons or at least 25% (1/4) of the weight of longest pile.

Piles driven shall be held firmly in position in axial alignment with the hammer by means of leads of adequate length. Approved cushions shall be provided to the pile butts.

BEARING POWER OF PILES

Each pile shall be driven to attain not less than the required minimum bearing power shown in the pile schedule, as determined by the Hiley's Formula as follows:

$$\text{For Diesel Pile Hammer}: \quad R = \frac{1}{6} \times \frac{2WH}{S + 2.54}$$

where : R = allowable bearing capacity of pile (tf)

W = weight of ram (tf)

H = fall of ram (cm)

S = set (cm)

In case of the use of hydraulic pile hammer, the computed minimum bearing power shall be submitted to the Project Development Department (PDD) and shall be evaluated and approved by the Designing Engineer.

DRIVING RECORDS

The Contractor shall keep complete and accurate piling records. Two (2) signed copies of these records shall be submitted to the Engineer not more than 48 hours from the date of works detailed therein. The pile records shall always be submitted with sufficient time for the Engineer's approval.

The records shall contain the following information:

1. Pile reference number

2. Pile type and Steel Grade

3. Pile Length

4. Commencing surface level and final toe level

5. Depth driven, time, date when piles were driven

6. Where required the number of blows to drive each 250 mm over the last 2.5 meter shall be recorded

7. Comments regarding unusual/unexpected driving conditions

INTERRUPTED DRIVING

When driving is stopped before final penetration is reached and/or refusal is attained, the record of pile penetration shall be taken only after a minimum of 30 cm. (12 in.) total penetration has been obtained on resumption of driving.

ALIGNMENT TOLERANCE

Piles driven shall be within the allowable tolerance in alignment of 10 cm. (4 in.) in any direction.

DAMAGED AND MISDRIVEN PILES

1. Piles shall not be more than 10 cm. (4 in.) out of place at cut-off level. All steel pipe piles shall not be more than 2% out of plumb.

2. Any pile damaged by improper driving or driven out of its proper location, or driven out of elevation fixed on the plans, shall be corrected correspondingly at the Contractor's expense by any of the following methods:

    a. Withdrawal of the pile and replacement by a new pile.

    b. Driving a second pile adjacent to the defective one.

    c. Splicing an additional length.

The method to be adopted in each case shall be at the discretion of the Engineer.

ITEM 16 : MOORING AND FENDERING SYSTEM

SCOPE OF WORK

1. The work includes furnishing of all labor, materials and equipment to complete the installation of mooring bollards and fenders in piers/wharves.

2. The work shall include the supply, transport, handling, storage and installation of fenders systems in the newly constructed piers.

3. The Contractor shall furnish and install the necessary fittings as shown on the drawings and/or specified.

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

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

MATERIAL REQUIREMENTS

MOORING SYSTEM

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

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

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

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

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

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

Base Steel:

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

Concrete Foundation :

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

Visual Inspection :

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

Mill Test Certificates:

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

Test Inspection:

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

FENDER SYSTEM

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

PHYSICAL PROPERTIES OF MATERIALS

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

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

Physical Properties and Test Method

Test Item			Properties	Test Method	
Physical Test	Before Aging	Tensile Strength	160kg/sq.m minimum	Test piece: Dumbell No. 3	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 and to the required shapes and sizes shown on the approved plan/drawings.

TESTING, SAMPLING, INSPECTION, ACCEPTANCE, MARKING AND PACKAGING

Testing

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

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

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

1. Fender temperature shall be stabilized at 23 degrees plus or minus 5 degrees centigrade for at least 24 hours before compression testing.

2. Break-in of fender by deflecting 3 times to rated deflection.

3. Removed load from the RDF and allow recovering for a minimum of 1 hour.

4. Deflect RDF at speed of 2-8 cm/min once to rated deflection.

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

Inspection

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

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

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

Acceptance Tolerance

The acceptance tolerance shall be based on the following:

1. Fender Dimension

Length	:	-2% to +4%
Width	:	-2% to +4%
Height	:	-2% to +4%
Thickness	:	-2% to +8%

2. Anchor Bolt Holes in Fender

Diameter of the Hole	:	+2.0mm
Pitch of the Hole	:	+4.0mm

3. Acceptance tolerance for all fenders supplied shall be as follows:

E = Energy absorption,	E ≥ Specified E but not less than 10% of the specified E
R = Reaction force,	R ≤ Specified R but not more than 10% of the specified R

Marking

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

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

Name of Port/Project:_____

Year supplied _____

Packaging

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

EXECUTION

MOORING / FENDERING SYSTEM

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

ITEM 17 : ELECTRICAL WORKS

SCOPE OF WORK

The work to be done shall consist of furnishing, delivering and installing electrical materials / fixtures completed in accordance with all the details of the electrical works as shown on the drawings including materials, labor, tools and equipment and all incidental works as found necessary.

Refer to electrical plans/drawings for location and extent of work involved.

GENERAL REQUIREMENTS

a) All works shall be done in accordance with the requirements of the publications and agencies having jurisdiction, as well as the requirements of the approved standards.

1.	National Fire Protection Association	-	(NFPA)
2.	National Electrical Manufacturer Association	-	(NEMA)
3.	Underwriter Laboratories, Inc.	-	(UL)
4.	Philippine Electrical Code Philippine National Standard	- -	(PEC) (PNS)
5.	Federation Specification: Circuit Breaker, Molded Case, Branch Circuit and Service		
6.	American National Standard Institute	-	(ANSI)
7.	American Society for Testing and Materials	-	(ASTM)
8.	Illuminating Engineering Society	-	(IES)
9.	Light Emitting Diode	-	(LED)

b) The electrical power of the Port lighting system will be connected to the Main Disconnect Panel (MDP) located on the concrete pedestal post. While the supply voltage should be 230 volts, single phase (1Ø), and 60 hertz.

c) The Contractor shall employ a licensed Registered Electrical Engineer or Master electrician to perform / to supervise to carry out continuous inspection of all electrical work.

d) The Contractor shall first obtain approval from the Authority before procurement, fabrication or delivery of electrical materials to the site. Partial submittals will not be acceptable and will be returned without review. Submittals shall include the Manufacturer's Name, Trade Name, Place of Manufacture, Catalog Model or Number, Nameplate Data, Size, Layout Dimensions, Capacity, Project Specification and Paragraph Reference, Technical Society Publication References and other information necessary to establish contract compliance of each item to be furnished.

e) All excavations fill and backfill and concrete works involved herein, shall be carried to the required elevations and shall conform to the provisions of specification under Earthwork and Concrete Construction of this tender document.

f) The materials and equipment to be furnished shall be standard products of reputable manufacturer engaged in the reproduction of such materials and equipment.

g) All permits and electrical fees required for this work shall be obtained at the expense of the Contractor. The Contractor shall furnish the Engineer-in-Charge, the final Certificates of Inspections and approval from the proper government authorities after the completion of work. The Contractor shall prepare all as- built plans and all other paper works as required by the enforcing authorities.

h) The Contractor shall furnish and install electrical materials as shown in the drawings. A licensed Electrical Engineer or Master Electrician is required to implement the installation of the electrical system.

i) Electrical installation shall conform to the requirements of Philippine Electrical Code (PEC) and the other approved standards.

j) The contractor shall install all electrical works with the supervision of the qualified Registered Electrical Engineer (REE) or Master Electrician. All electrical installation applications regardless of capacity and voltage whether new, addition or revision shall be accompanied by electrical plans signed and sealed by a duly licensed Professional Electrical Engineer (PEE).

MATERIAL REQUIREMENTS

All materials shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark.

PRODUCTS

WIRES AND CABLES

The conductor material to be furnished and installed shall be copper wire Heat-Resistant Thermoplastic (THHN/THWN-2). All conductors shall be rated 600 volts insulation and shall be standard for all sizes.

CONDUIT AND FITTINGS

Underground PVC conduit shall be polyvinyl chloride with concrete covered. It shall be manufactured to schedule 40 outside diameter. All fittings and bends shall be solvent bonded using manufacturers recommended product.

LED FLOODLIGHT FIXTURE 200 WATT

Specifications:

Rated	: 200 watt LED Floodlight Fixture or equivalent
Input Voltage	: AC 100-277 / 50-60 HZ
Lumens	: 26000 -28000 LM
Color Temperature	: Warm White / Daylight
Optional	
CRI	: Ra>70
PF	: 0.95
Beam Angle	: 120 degrees
IP Grade	: IP 66 / IP 65
Drive Brand	: Meanwell
LED Chip Brand	: Philips

Switches:

Weatherproof die cast aluminum toggle switch (NEMA-3R) attached to Single Angle Bar Floodlight Steel Tapered Lamp Post.

CONCRETE DUCT BANK and HANDHOLE

The contractor shall construct concrete duct bank and handhole as shown in the approved plans.

SINGLE ANGLE BAR FLOODLIGHT STEEL TAPERED LAMP POST

Lamp Post shall be 10.0 m ht. Single Angle Bar Floodlight steel tapered lamp post, furnished installed and tested as shown on the approved plans. The post/s shall be dimensioned for a wind velocity of 185 km/hr. It shall be locally fabricated or manufactured. The post shall be Hot – Dipped Galvanized, prime-coated with red lead and shall be painted at site with the final coating preferably aluminum paint to be approved by the Engineer.

PANEL BOARD

Panel board shall conform as shown on the approved plans with respect to supply characteristics, rating of main lugs or main circuit breaker, number and ratings and capacities of branch circuit breakers.

Panel board shall consist of a factory completed dead front assembly mounted in an enclosing NEMA-3R cabinet consisting of code gauge galvanized sheet steel box with trim and door.

Main and branch circuit breakers for panel board shall have the rating, capacity and number of poles as shown on the approved plans. Breakers shall be thermal magnetic type solid state-type with interrupting capacity of 10,000 amperes symmetrical minimum. Breaker terminal shall be UL listed as suitable for type of conductor provided. Breaker shall be the bolt-in type (that is, bolted to the current carrying bus). Plug-in circuit breakers are not acceptable.

EXECUTION

INSTALLATION

Single Angle Bar Floodlight Steel Tapered Lamp Post shall be installed as shown on the approved plans.

Pole Setting: Depth as shown on the approved plans.

Construction of lamp post foundation shall be in accordance with the shape and dimensions as shown on the approved plans.

Excavations / backfilling required before /after installation of lamp post foundation with the trench shall conform to the provisions of Earthwork and Concrete construction.

Concrete Pedestal shall be reinforced concrete with appropriate weatherproof fittings as constructed as shown in the approved plan. Reinforced concrete materials shall conform to the requirements of concrete. Concrete shall be of 21 Mpa (3000 psi) compressive strength.

Metering: the local utility company of Port of Ubay, Bohol Electric Cooperative is responsible for the supply and installation of measuring equipment, and its accessories, but it is part of the contractor responsibility and expense to contact them about this.

WORKMANSHIP

The work throughout shall be executed in the best and most thorough manner under the direction of and at the satisfaction of the Registered Electrical Engineer or Master Electrician, who will interpret the intent meaning of the drawings and specification and shall have the power to reject any work and materials which in his judgment, are not in full accordance therewith.

TESTING OPERATIONS

When the electrical installation is completed, the Contractor shall test the installed electrical materials and equipment in the presence of Registered Electrical Engineer or Master Electrician. The system shall be free from any defects, shorts or grounds. The Contractor at no extra cost shall furnish all necessary instruments and personnel required for the testing.

GUARANTEE

Upon completion and before final acceptance of the work, the Contractor shall furnish the Engineer a written guarantee stating that all works executed are free from defects on materials and workmanship. The guarantee shall be for a period of one year from the date of the final acceptance. Any work that becomes defective during the said period shall be corrected / replaced by the Contractor at his own expense in a manner satisfactory to the Authority.

ITEM 18 : PROJECT BILLBOARD

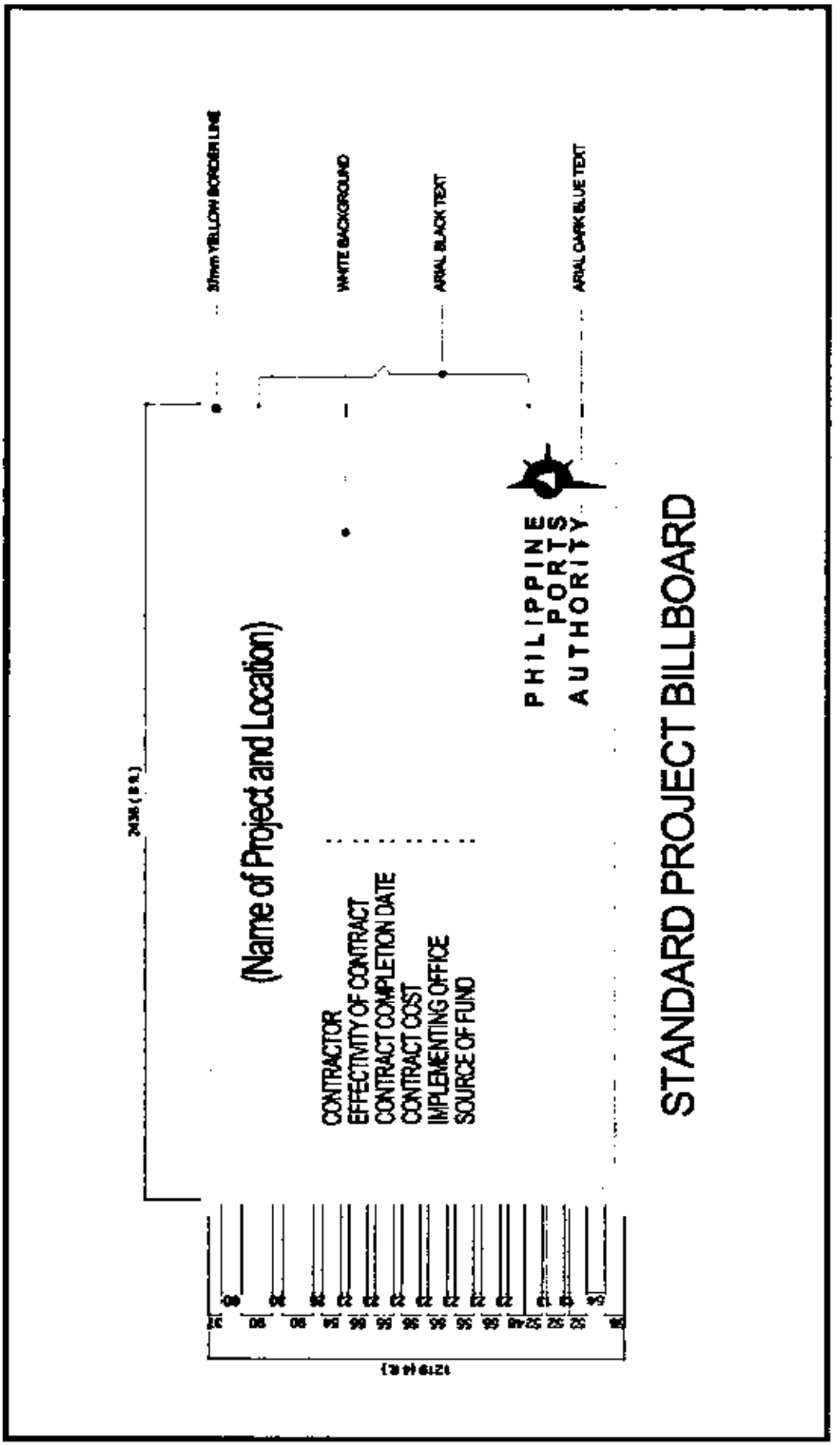
SPECIFICATION

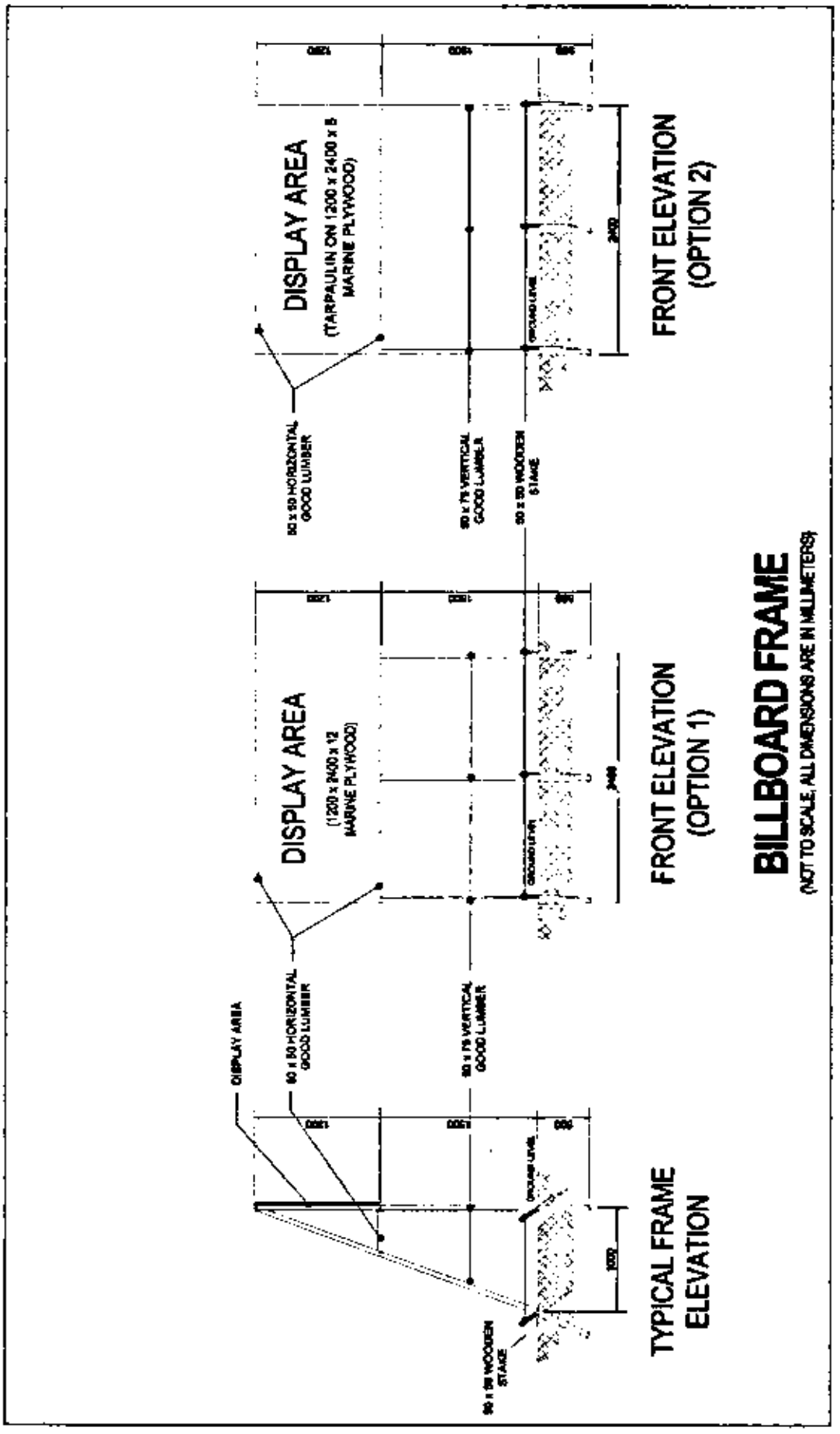
The Project Billboard shall be installed at location(s) designated by the Engineer.

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


BILLBOARD FRAME
(NOT TO SCALE, ALL DIMENSIONS ARE IN MILLIMETERS)
FRONT ELEVATION
(OPTION 2)
DISPLAY AREA
(TARPAULIN ON 1200 x 2400 x 8
MARINE PLYWOOD)
50 x 50 HORIZONTAL
GOOD LUMBER
50 x 75 VERTICAL
GOOD LUMBER
50 x 50 WOODEN
STAGE
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
STAGE

ITEM 19 : SAFETY SIGNAGES AND BARRICADES

DESCRIPTION

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

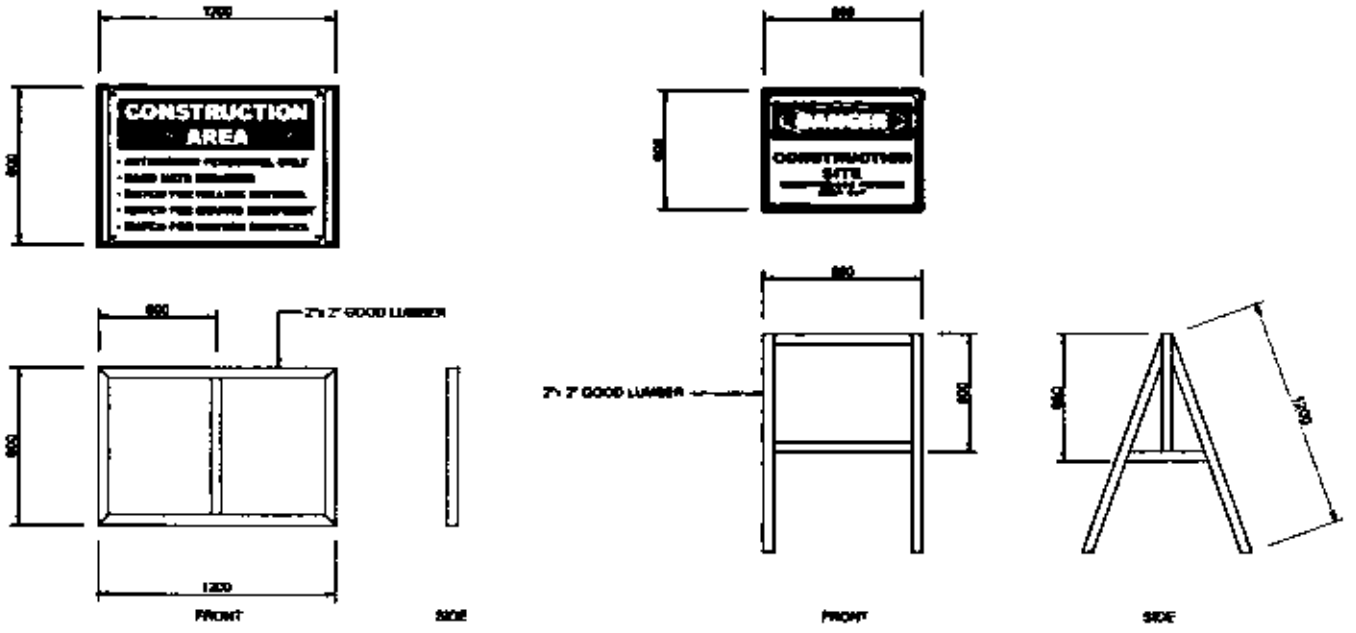
SPECIFICATION

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

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

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

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



FRAMING FOR 0.80m x 1.20m SIGNAGES

FRAMING FOR 0.60m x 0.80m SIGNAGES AND BARRICADES

STANDARD PLAN FOR SIGNAGES AND BARRICADES

SECTION VII

DRAWINGS
(APPROVED PLANS)

DRAWINGS AND APPROVED PLANS
(SEE ISSUED APPROVED PLANS)

LIST OF DRAWINGS:

1 OF 25	DEVELOPMENT PLAN, VICINITY MAP, GENERAL NOTES DESIGN PARAMETERS, LIST OF DRAWINGS
2 OF 25	GENERAL PLAN FOR PORT OPERATIONAL AREA W/ CONTINUOUS RAMP
3 OF 25	PILING PLAN FOR PORT OPERATIONAL AREA W/ CONTINUOUS RAMP
4 OF 25	SECTION A' & A
5 OF 25	SECTION B & C
6 OF 25	SECTION D & E
7 OF 25	SECTION F & G
8 OF 25	SECTION Z, SECTION Y, SECTION X
9 OF 25	SECTION W, SECTION V, DETAIL OF COPING WALL DETAIL OF COPING WALL AT RAMP
10 OF 25	DETAIL OF RETAINING WALL-1, TYPICAL SECTION OF RETAINING WALL-2, DETAIL OF CONTINUOUS ANCHOR WALL, DETAIL OF ANCHOR BLOCK FOR MOORING BLOCK, TYPICAL DETAIL OF LIFTING HANDLE OF CONCRETE BLOCKS
11 OF 25	DETAIL OF BLOCK-1 (B-1), DETAIL OF BLOCK-2 (B-2, B-2A), DETAIL OF BLOCK-3 (B-3), DETAIL OF BLOCK-4A (B-4A)
12 OF 25	DETAIL OF MOORING ATTACHMENT ON COPING WALL DETAIL OF MOORING BLOCK ON RAMP (35 TONS) DETAIL OF MOORING BLOCK ON RAMP (50 TONS)
13 OF 25	SHEET PILE CONNECTION DETAIL, DETAIL OF CHANNEL DETAIL OF WALE, DETAILS OF WALE SPLICE
14 OF 25	DETAIL OF SHEET PILE, PILE DOWEL AND COATING DETAILS
15 OF 25	DETAIL OF TIE RODS, DETAIL OF PLATE WASHERS TYPICAL PAVEMENT JOINTS LAYOUT, DETAIL OF PAVEMENT JOINTS DETAIL OF PROPOSED STAIR LANDING
16 OF 25	50 TON MOORING TEE HEAD, DETAIL OF ANCHOR BOLT DETAIL OF ANCHOR BOLT (FOR 35 TON MOORING TEE HEAD - 5 SETS), MOORING CLEAT (10 TONS)

17 OF 25	DETAIL OF RUBBER DOCK FENDER V-TYPE 500H x 1000L DETAIL OF RUBBER DOCK FENDER V-TYPE 500H x 1500L DETAIL OF TYPICAL ANCHOR BOLT (NORMAL) (FOR 500H RUBBER DOCK FENDER)
18 OF 25	RORO RAMP W/ CHANNEL SKID BARS, TYPICAL SECTION RORO RAMP W/ CHANNEL SKID BARS, TYPICAL CHANNEL SECTION FABRICATED CHANNEL SKID BAR, TYPICAL PAVEMENT SECTION TYPICAL ANCHOR BARS
19 OF 25	GENERAL PLAN RC PIER EXTENSION, PILING PLAN RC PIER EXTENSION
20 OF 25	SECTION 1, SECTION 2, SECTION 3, SECTION 4
21 OF 25	TYPICAL TRANSVERSE BEAM REINFORCEMENT TYPICAL LONGITUDINAL BEAM REINFORCEMENT
22 OF 25	SECTION OF TRANSVERSE BEAM, SECTION OF LONGITUDINAL BEAM SECTION OF LONGITUDINAL CANTILEVER BEAM, CURTAIN WALL-1 & 2 DETAIL OF PILE CAP FOR COUPLE BATTER PILES DETAIL OF PILE CAP FOR VERTICAL PILES
23 OF 25	TYPICAL REINFORCEMENT OF MOORING / FENDER BLOCK 2 TYPICAL REINFORCEMENT OF FENDER BLOCK TYPICAL SLAB REINFORCEMENT, DETAIL OF CONSTRUCTION JOINT DETAIL "Y"
24 OF 25	TYPICAL SECTION OF VERTICAL PILES TYPICAL SECTION OF COUPLE BATTER PILES
25 OF 25	DETAIL OF RUBBER DOCK FENDER V-TYPE 500H x 2000L (FROM THE EXISTING RC PIER TO BE REINSTALLED) DETAIL OF ANCHOR BOLT (NORMAL) (10 SETS) 50 TON MOORING TEE HEAD, DETAIL OF ANCHOR BOLT
PL- 01 of 03	PORT LIGHTING LAYOUT PLAN, LEGEND, GENERAL NOTES
PL- 02 of 03	SINGLE ANGLE BAR FLOODLIGHT STEEL TAPERED LAMP POST DETAIL OF LAMP POST AND FOUNDATION FLOODLIGHT POST CONNECTION DETAILS SPECIFICATIONS
PL- 01 of 03	DETAIL OF DUCTBANK, DETAIL OF CONCRETE PEDESTAL POST DETAILS OF HANDHOLE, LOAD SCHEDULE, RISER DIAGRAM
ANNEX- A	TOPOGRAPHIC AND HYDROGRAPHIC SURVEY PLAN OF UBAY PORT, UBAY, BOHOL DATE SURVEYED: 07 - 08 MARCH 2024

SECTION VIII

BILL OF QUANTITIES and ATTACHMENTS

BID SUMMARY
UBAY PORT EXPANSION PROJECT
Port of Ubay, Brgy. Poblacion, Ubay, Bohol

NO.	DESCRIPTION OF WORK	AMOUNT (Pesos)
BILL NO. 1	GENERAL EXPENSES	
BILL NO. 2	REMOVAL AND EXCAVATION WORKS	
BILL NO. 3	PORT OPERATIONAL AREA WITH CONTINUOUS RORO RAMP	
BILL NO. 4	R.C. PIER EXTENSION	
	BID PRICE	

Name of Firm

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

Date

BILL OF QUANTITIES
UBAY PORT EXPANSION PROJECT
Port of Ubay, Brgy. Poblacion, Ubay, Bohol

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	Rental of temporary site office and residence for the Engineer and staff	mo.	16		
1.03	Maintain temporary site office and residence for the Engineer and staff	mo.	16		
1.04	Provide Construction Safety and Health Program in the execution of the project	mo.	16		
	TOTAL FOR BILL NO. 1				

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

BILL OF QUANTITIES
UBAY PORT EXPANSION PROJECT
Port of Ubay, Brgy. Poblacion, Ubay, Bohol

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
BILL NO.	2 REMOVAL AND EXCAVATION WORKS				
2.01	Chip-off portion of existing R.C. Curb, flush to required elevation and smoothen with mortar	l.m.	113		
2.02	Remove and dispose existing damage pavement, roro ramp pavement and existing pavement prior for instalaition of electrical works	sq.m.	418		
2.03	Excavate and dispose existing seabed	cu.m.	341		
2.04	Remove existing mooring bollard and accessories	no.	7		
2.05	Remove existing rubber dock fender and acessories	no.	10		
2.06	Excavate and backfill existing fill materail prior for installation of electrical works	cu.m.	40		
	TOTAL FOR BILL NO. 2				

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

BILL OF QUANTITIES
UBAY PORT EXPANSION PROJECT
Port of Ubay, Brgy. Poblacion, Ubay, Bohol

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
BILL NO.	3 PORT OPERATIONAL AREA WITH CONTINUOUS RORO RAMP				
3.01	Supply and deliver to site U-type steel sheet piles including connectors pile shoe and other accessories	m.t.	503		
3.02	Supply and place abrasion resistance modified epoxy for steel sheet piles	sq.m.	5,663		
3.03	Handle, pitch and drive steel sheet piles and connectors	l.m.	3,776		
3.04	Supply and install dowel bars for steel sheet piles	kg.	8,352		
3.05	Supply and install steel waling and splice plate for the steel sheet piles	kg.	13,560		
3.06	Supply and place 3,500 psi concrete for the coping wall, retaining wall, anchor wall, anchor block, mooring block, rc curb, stair landing, and electrical works	cu.m.	941		
3.07	Supply and install steel reinforcement for the coping wall, retaining wall, anchor wall, anchor block, mooring block, rc curb, stair landing, and electrical works	kg.	111,378		
3.08	Supply and place gravel bedding	cu.m.	11		
3.09	Supply and place 50-100 kg. Core rocks	cu.m.	6,563		
3.10	Supply and place rubble concrete	cu.m.	7		

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

BILL OF QUANTITIES
UBAY PORT EXPANSION PROJECT
Port of Ubay, Brgy. Poblacion, Ubay, Bohol

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
3.11	Supply and install Concrete blocks including lifting handle:				
	a) Concrete block no. 1 (Cast-in-place)	no.	1		
	b) Concrete block no. 2	no.	71		
	c) Concrete block no. 2B	no.	2		
	d) Concrete block no. 3	no.	66		
	e) Concrete block no. 4	no.	72		
3.12	Supply and install tie-rod of various sizes including accessories				
	a) 46mm Ø x 16.00m	set	167		
	b) 46mm Ø x 7.00m	set	2		
	c) 36mm Ø x 10.00m	set	10		
3.13	Supply and install Geotextile Fabric	sq.m.	2,100		
3.14	Supply and place Sand and Gravel fill	cu.m.	17,402		
3.15	Supply, spread and compact aggregate sub-base course	cu.m.	5,493		
3.16	Supply, spread and compact aggregate base course	cu.m.	1,295		
3.17	Construct portland cement concrete pavement (300mm thk) including dowel bars and construction joint	sq.m.	8,512		
3.18	Supply deliver and install port lighting system including wires, floodlight steel lamp post, floodlight fixtures and other accessories	lot	1		

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

BILL OF QUANTITIES
UBAY PORT EXPANSION PROJECT
Port of Ubay, Brgy. Poblacion, Ubay, Bohol

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
3.19	Supply, fabricate and install black iron channel steel ramp protection including dowel connectors and other accessories	set	22		
3.20	Supply and deliver to site rubber dock fender (V-type, 500H x 1500L) including accessories	set	5		
3.21	Supply and deliver to site rubber dock fender (V-type, 500H x 1000L) including accessories	set	13		
3.22	Install rubber dock fender and accessories	set	18		
3.23	Supply and deliver to site mooring bollard (50 Tons, T-head) including accessories	set	1		
3.24	Supply and deliver to site mooring cleat (10 Tons) including accessories	set	9		
3.25	Install mooring bollards and mooring cleat including accessories	set	10		
3.26	Re-install newly removed mooring bollards with new accessories	set	5		
3.27	Restoration of demolished pavement	sq.m.	92		
	TOTAL FOR BILL NO. 3				

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

BILL OF QUANTITIES
UBAY PORT EXPANSION PROJECT
Port of Ubay, Brgy. Poblacion, Ubay, Bohol

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 EXTENSION**				
4.01	Supply and deliver to site steel pipe piles	m.t.	159		
4.02	Supply and place abrasion resistatance modified epoxy for steel pipe piles	sq.m.	994		
4.03	Supply, fabricate and install band tip for steel pipe piles prior to driving	no.	85		
4.04	Handle, pitch and drive vertical steel pipe piles	l.m.	714		
4.05	Handle, pitch and drive batter steel pipe piles	l.m.	510		
4.06	Supply and install reinforcing steel cage for steel pipe piles	kg.	15,553		
4.07	Supply and place 3,500 psi concrete filler for steel pipe piles	cu.m.	63		
4.08	Supply and install steel reinforcements for the superstructure	kg.	58,353		
4.09	Supply and place 3,500 psi concrete for the superstructure	cu.m.	363		
4.10	Suppy and install construction joints (100mm x 100mm x 10mm) angle bar, hot-dipped galvanized including dowel bars	l.m.	15		
4.11	Re-instal newly removed rubber dock fender with new accessories	set	10		
4.12	Supply and deliver to site mooring bollard (35 Tons, T-head) including accessories	set	10		

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

BILL OF QUANTITIES
UBAY PORT EXPANSION PROJECT
Port of Ubay, Brgy. Poblacion, Ubay, Bohol

NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
4.13	Install mooring bollards (T-head type) and accessories	set	10		
	TOTAL FOR BILL NO. 4				

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

BASIS OF PAYMENT FOR WORK ITEMS INCLUDED IN THE PROPOSAL

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

BILL NO. 1

GENERAL EXPENSES

Item 1.01 Mobilization, 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 Rental of temporary site office and residence for the Engineer and staff

The quantity to be paid for shall be the actual rental of 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

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

REMOVAL AND EXCAVATION WORKS

Item 2.01 Chip-off portion of existing R.C. Curb, flush to required elevation and smoothen with mortar

The quantity to be paid for shall be the actual length in linear meter of existing RC curb to be chipped off, flushed to required elevation, and smoothened with mortar 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 Remove and dispose existing damage pavement, roro ramp pavement and existing pavement prior for installation of electrical works

The quantity to be paid for shall be the actual area in square meter of existing damage pavement, roro ramp pavement and existing pavement to be removed and disposed prior the installation of electrical works 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 Excavate and dispose existing seabed

The quantity to be paid for shall be the actual volume in cubic meter of existing seabed materials to be excavated 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 2.04 Remove existing mooring bollard and accessories

The quantity to be paid for shall be the actual number of existing mooring bollard and accessories to be removed 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 2.05 Remove existing rubber dock fender and accessories

The quantity to be paid for shall be the actual number of existing rubber dock fender and accessories to be removed 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 2.06 Excavate and backfill existing fill material prior for installation of electrical works

The quantity to be paid for shall be the actual volume in cubic meter of existing fill material to be excavated prior the installation of electrical works and backfilled thereafter in accordance with the plans and specifications and accepted by the Engineer. Hydrographic/Topographic Surveys before and after placing of armour rocks 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.

BILL NO. 3

PORT OPERATIONAL AREA WITH CONTINUOUS RORO RAMP

Item 3.01 Supply and deliver to site U-type steel sheet piles including connectors pile shoe and other accessories

The quantity to be paid for shall be the actual weight in metric ton of U-type steel sheet piles including connectors pile shoe and other accessories to be 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 3.02 Supply and place abrasion resistance modified epoxy for steel sheet piles

The quantity to be paid for shall be the actual area in square meter of abrasion resistance modified epoxy for steel sheet piles to be 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 Handle, pitch and drive steel sheet piles and connectors

The quantity to be paid for shall be the actual length in linear meter of steel sheet piles and connectors to be handled, pitched, and driven 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 install dowel bars for the steel sheet piles

The quantity to be paid for shall be the actual weight in kilogram of dowel bars to be supplied and installed for the steel sheet 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 3.05 Supply and install steel waling and splice plate for the steel sheet piles

The quantity to be paid for shall be the actual weight in kilogram of steel waling and splice plate to be supplied and installed for the steel sheet 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 3.06 Supply and place 3,500 psi concrete for the coping wall, retaining wall, anchor wall, anchor block, mooring block, rc curb, stair landing, and electrical works

The quantity to be paid for shall be the actual volume in cubic meter of 3,500 psi concrete for the coping wall, retaining wall, anchor wall, anchor block, mooring block, rc curb, stair landing, and electrical works to be 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 3.07 Supply and install steel reinforcement for the coping wall, retaining wall, anchor wall, anchor block, mooring block, rc curb, stair landing, and electrical works

The quantity to be paid for shall be the actual weight in kilogram of steel reinforcement for the coping wall, retaining wall, anchor wall, anchor block, mooring block, rc curb, stair landing, and electrical works to be 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 3.08 Supply and place gravel bedding

The quantity to be paid for shall be the actual volume in cubic meter of gravel bedding to be 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 3.09 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, to be supplied and laid-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 3.10 Supply and place rubble concrete

The quantity to be paid for shall be the actual volume in cubic meter of rubble concrete to be supplied and laid-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 3.11 **Supply and install Concrete blocks including lifting handle:**

a.) Concrete block no. 1 (Cast-in-place)
b.) Concrete block no. 2
c.) Concrete block no. 2B
d.) Concrete block no. 3
e.) Concrete block no. 4

The quantity to be paid for shall be the actual number of concrete blocks of various sizes including lifting handle to be 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 3.12 **Supply and install tie-rod of various sizes including accessories:**

f.) 46mm Ø x 16.00m
g.) 46mm Ø x 7.00m
h.) 36mm Ø x 10.00m

The quantity to be paid for shall be the actual set of tie rod of various size and length including accessories to be 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 3.13 **Supply and install Geotextile Fabric**

The quantity to be paid for shall be the actual area in square meter of Geotextile Fabric to be 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 3.14 **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 to be supplied and laid-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 3.15 **Supply, spread, and compact aggregate sub-base course**

The quantity to be paid for shall be the actual volume in cubic meter of aggregate sub-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 3.16 **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 3.17 Construct Portland cement concrete pavement (300mm thick) including dowel bars and construction joint

The quantity to be paid for shall be the actual area in square meter of Portland Cement Concrete pavement (300mm thick) including dowel bars and construction joint 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 3.18 Supply deliver and install port lighting system including wires, floodlight steel lamp post, floodlight fixtures and other accessories

The quantity to be paid for shall be the actual lot of port lighting system including wires, floodlight steel lamp post, floodlight fixtures and other accessories to be supplied, delivered, 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 3.19 Supply, fabricate and install black iron channel steel ramp protection including dowel connectors and other accessories

The quantity to be paid for shall be the actual set of black iron channel steel ramp protection including dowel connectors and other accessories to be 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 3.20 Supply and deliver to site rubber dock fender (V-type, 500H x 1500L) including accessories

The quantity to be paid for shall be the actual set of rubber dock fender (V-type, 500H x 1500L) including accessories to be 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 3.21 Supply and deliver to site rubber dock fender (V-type, 500H x 1000L) including accessories

The quantity to be paid for shall be the actual set of rubber dock fender (V-type, 500H x 1000L) including accessories to be 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 3.22 Install rubber dock fender and accessories

The quantity to be paid for shall be the actual set of rubber dock fender and accessories to be 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 3.23 Supply and deliver to site mooring bollard (50 Tons, T-head) including accessories

The quantity to be paid for shall be the actual set of mooring bollards (50 Tons, T-head) including accessories to be 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 3.24 Supply and deliver to site mooring cleat (10 Tons) including accessories

The quantity to be paid for shall be the actual set of mooring cleats (10 Tons) including accessories to be 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 3.25 Install mooring bollards and mooring cleat including accessories

The quantity to be paid for shall be the actual set of mooring bollards and mooring cleat including accessories to be 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 3.26 Re-install newly removed mooring bollards with new accessories

The quantity to be paid for shall be the actual set of newly removed mooring bollards to be re-installed with new accessories 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 3.27 Restoration of demolished pavement

The quantity to be paid for shall be the actual area in square meter of demolished pavement to be restored 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 EXTENSION

Item 4.01 Supply and deliver to site steel pipe piles

The quantity to be paid for shall be the actual weight in metric ton of steel pipe piles to be 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 place abrasion resistance modified epoxy for steel pipe piles

The quantity to be paid for shall be the actual area in square meter of abrasion resistance modified epoxy for steel pipe piles to be 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 4.03 Supply, fabricate and install band tip for steel pipe piles prior to driving

The quantity to be paid for shall be the actual number steel pipe piles for which band tip are to be 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 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 sheet piles to be handled, pitched, and driven 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 4.05 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 to be handled, pitched, and driven 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 4.06 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 to be 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 4.07 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 to be 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 4.08 Supply and install steel reinforcement for the superstructure

The quantity to be paid for shall be the actual weight in kilogram of steel reinforcement for the superstructure to be 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 4.09 Supply and place 3,500 psi concrete for the superstructure

The quantity to be paid for shall be the actual volume in cubic meter of 3,500 psi concrete for superstructure to be 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 construction joints (100mm x 100mm x 10mm) angle bar, hot-dipped galvanized including dowel bars

The quantity to be paid for shall be the actual length in linear meter of construction joints (100mm x 100mm x 10mm) angle bar, hot-dipped galvanized including dowel bars to be 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 Re-install newly removed rubber dock fender with new accessories

The quantity to be paid for shall be the actual set of newly removed rubber dock fender to be re-installed with new accessories 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 deliver to site mooring bollard (35 Tons, T-Head) including accessories

The quantity to be paid for shall be the actual set of mooring bollards (35 Tons, T-Head) including accessories to be 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 4.13 Install mooring bollards (T-head type) including accessories

The quantity to be paid for shall be the actual set of mooring bollards (T-head type) including accessories to be 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.

FACILITIES TO BE PROVIDED FOR THE ENGINEER & HIS STAFF

RENTAL OF SITE OFFICE AND RESIDENCE FOR THE ENGINEER & STAFF

The Contractor shall provide a temporary site office and residence (rental) with an area of at least 48 square meters for use of the Engineer and his staff for the whole duration of the project.

MINIMUM MAJOR EQUIPMENT REQUIREMENTS

1	unit/s	Air Compressor (250 cfm, minimum), owned
1	unit/s	Backhoe (0.40 cu.m., 94.30hp, minimum), owned
1	unit/s	Clamshell, owned
1	unit/s	Concrete cutter, owned
1	unit/s	Concrete Mixer (1 bagger, minimum), owned
1	unit/s	Concrete bucket, owned
1	unit/s	Concrete Screeder, owned
2	unit/s	Concrete Vibrator (3.5 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. min. to 10,500 kg-m. max.) or hydraulic equivalent), owned
4	unit/s	Diving equipment (complete), owned/leased
1	unit/s	Drop Hammer (2T, minimum), owned
1	unit/s	Dump Truck (10T net capacity, minimum), owned
2	unit/s	Bar Bender (electric, 25mm dia min.), owned
2	unit/s	Bar Cutter (electric, 25mm dia min.), owned
1	unit/s	Jackhammer, owned
1	unit/s	Oxy/Acetylene cutting outfit, owned
1	unit/s	Payloader (80 hp, minimum), owned
1	unit/s	Plate Compactor (5 hp, minimum), owned
1	unit/s	Road Grader (125 hp, minimum), owned/leased
1	unit/s	Road Roller (10T, vibratory, minimum), owned/leased
2	unit/s	Transit Mixer (6 cu.m. cap., minimum), owned/leased
1	unit/s	Tugboat (500hp, minimum), owned/leased
2	unit/s	Water Truck with pump (1,000 gal., minimum), owned
2	unit/s	Welding Machine (400 amp., minimum), owned
1	unit/s	Cargo Truck (2 Tons minimum) , 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).

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

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

Safety Devices

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

Medical and First Aid System	-	Sixteen (16) 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)
B 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 Foang 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 Coarse Aggregates	Same Test as for SC (C)	Same frequency as SC (C)
B Steel Pipe Piles		
1 Steel	Same test as for P (B1)	Same frequency as P (B1)
2 Concrete	Same test as for SC (F)	Same frequency as SC (F)
3 Fine Aggregate	Same test as for SC (B)	Same frequency as SC (B)
4 Steel Bars	Same test as for SC (E)	Same frequency as SC (E)

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

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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	For every 1,500 cubic meter or fraction thereof
	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
B Structure Excavation	If excavated materials shall be used as Backfill Grading Test Plasticity Test (LL,PL,PI) Laboratory Compaction Test	For every 1,500 cubic meter or fraction thereof
	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

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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 Pore-blocking 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

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

SECTION IX

CHECKLIST OF TECHNICAL AND FINANCIAL DOCUMENTS

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

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

Technical Documents

☐ (b) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**

☐ (c) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules; **and**

☐ (d) Special PCAB License in case of Joint Ventures;
and registration for the type and cost of the contract to be bid; **and**

☐ (e) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;
or
Original copy of Notarized Bid Securing Declaration; **and**

(f) Project Requirements, which shall include the following:

☐ a. Organizational chart for the contract to be bid;

☐ b. List of contractor's key personnel (*e.g.*, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;

☐ c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; **and**

☐ (g) Original duly signed Omnibus Sworn Statement (OSS);
and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

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

Class "B" Documents

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

II. FINANCIAL COMPONENT ENVELOPE

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

Other documentary requirements under RA No. 9184

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

☐ (l) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; **and**

☐ (m) Cash Flow by Quarter.

SECTION X

BIDDING FORM

Bid Form for the Procurement of Infrastructure Projects

[shall be submitted with the Bid]

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: **Ubay Port Expansion Project, Port of Ubay, Brgy. Poblacion, Ubay, Bohol**

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 included

[1] currently based on GPPB Resolution No. 09-2020

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 **Ubay Port Expansion Project, Port of Ubay, Brgy. Poblacion, Ubay, Bohol** of the **Philippine Ports Authority**.

l. We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: _____

Legal Capacity: _____

Signature: _____

Duly authorized to sign the Bid for and behalf of: _____

Date: _____

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

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

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

NOTE:

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

This Statement shall be supported by:

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

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

Revised: September 2021

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

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

NOTE :

1] As appearing in the contract executed by the parties.
2] With special reference to the Scope of Works of the Project as described/enumerated in the Contract.
3] Indicate the percentage of participation and whether as Sole Contractor, Sub-Contractor or Member in a Joint Venture / Consortium.
4] Indicate the FOREX used if Contract Value is expressed in a currency other than the Philippine Peso. Attached the computation for the escalated contract value.
5] As appearing in the Notice of Award.
6] As appearing in the Notice to proceed and Certificate of Completion.

A. The bidder must have an experience of having completed a SLCC that is similar to the contract to be bid equivalent to at least fifty percent (50%) of the ABC, adjusted if necessary, by the Bidder to current prices using the PSA consumer price indices. A contract is considered to be "similar" to the contract to be bid if it has the same Major Categories of Work as stated in the Bid Data Sheet (BDS).

B. This Statement shall be supported by:
   a. Notice of Award, Notice to Proceed and Contract.
   b. Project Owner's Certificate of Final Acceptance issued by the owner and/ or Constructors Performance Evaluation System (CPES) Final Rating, which must be at least Satisfactory. The said Certificate of Acceptance shall contain the following: 1) Name of project owner that issued the certificate, 2) Name of Contractor/ Constructor, 3) Name of Contract, and 4) Contract Duration.
   c. Recapitulation or Final Bill of Quantities.

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

Revised: September 2021

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

Major Categories of Work 1]	Unit of Measure 1]	Quantity 1]	SLCC similar to the contract to be bid 2]	Other completed contracts similar to the contract to be bid 2]			Unit of Measure 2]	Quantity 2]
			Name of the contract	Name of the contract	Name of the contract	Name of the contract		
1. Pile Driving works (off-shore)	l.m.	2,500						
2. Reinforced Concrete works	cu.m.	502						
3. Rockworks (50-100 kg/pc.)	cu.m.	3,282						
4. Placing of fill materials	cu.m.	11,448						

NOTE:
1] As stated in the Bid Data Sheet.
2] As appearing in the Recapitulation and/ or Final Bill of Quantities.
This statement shall be supported by:

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

Name of Firm

Name of Bidder/Authorized Representative
Signatory's Legal Capacity

Date

Revised: September 2021

FINANCIAL DATA

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

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

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

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

NFCC = _____

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

_____
Name of Firm/Applicant

_____
Authorized Signing Official

Date:_____

NOTES:

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

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

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

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

NOTE: 1] As stated in the Bid Data Sheet
2] The number of years of experience of the key personnel shall be as indicated in the qualification and experience data or curriculum vitae.

Minimum qualification requirements: The key personnel must have a work experience that is similar in nature and complexity to the contract to be bid.
Project Manager - Five (5) years
Project Engineer - Three (3) years
Foreman - Five (5) years
Construction Safety and Health Officer – One (1) year
Materials Engineer II – for projects costing more than 100M

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

Revised: September 2021

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

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

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

NOTE:

1] The unit of capacity of the pledged equipment shall be as indicated in the Proof of Ownership, i.e. GW (for crane barge), DWT (for deck barge and hopper barge), Ton (for crane, road roller and drop hammer), kg.-m/blow (for diesel hammer), cu.m. (for dump truck), hp (for tugboat, road grader, bulldozer and concrete vibrator), cfm (for compressor), gal (for water truck with pump), amp (for welding machine), bagger (for concrete mixer). If the capacity of the pledged equipment is not indicated in the Proof of Ownership/Lease Contract/Purchased Agreement, submit other proof of capacity such as specifications, brochures or other verifiable printouts indicating the model name, model number and other details of the equipment.

2] Indicate if the pledged equipment are owned, leased or under purchase agreement.

3] If the pledged equipment is owned, it should be in the name of the bidder. Submit proof of ownership, i.e. deed of sale, sales invoice, official receipt; For owned Water Truck, Dump Truck, Cargo Truck and Transit Mixer submit LTO Certificate of Registration and valid Official Receipt; For owned barge/tugboat, submit Marina Certificate of Ownership and valid Cargo Ship Safety Certificate.

If the pledged equipment is leased/under purchase agreement, submit the following:

For equipment under lease agreement:

a. certification of availability of equipment from the equipment lessor for the duration of the project
b. duly Notarized copy of lease contract
c. For Water Truck, Dump Truck, Cargo Truck and Transit Mixer submit LTO Certificate of Registration and valid Official Receipt

For equipment under purchase agreement:

a. certification of availability of equipment from the equipment vendor
b. duly Notarized copy of purchase agreement
c. For Water Truck, Dump Truck and Transit Mixer submit LTO Certificate of Registration and valid Official Receipt or copy of conduction sticker, whichever is applicable.

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

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

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

Revised: August 2024

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 **Ubay Port Expansion Project, Port of Ubay, Brgy. Poblacion, Ubay, Bohol**, as shown in the attached duly notarized Special Power of Attorney;

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. The owner or sole proprietor is not related to the Head of the Procuring Entity, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

   a. Carefully examining all of the Bidding Documents;
   b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
   c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
   d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any

form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

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

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

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

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

Omnibus Sworn Statement for Partnership or Cooperative

[shall be submitted with the Bid]

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

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

1. I am the duly authorized and designated representative of _____ with office address at _____;

2. I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for **Ubay Port Expansion Project, Port of Ubay, Brgy. Poblacion, Ubay, Bohol** 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, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

   a. Carefully examining all of the Bidding Documents;
   b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
   c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
   d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

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

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

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

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

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

Omnibus Sworn Statement for 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 **Ubay Port Expansion Project, Port of Ubay, Brgy. Poblacion, Ubay, Bohol**, 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, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

   a. Carefully examining all of the Bidding Documents;
   b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
   c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
   d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any

form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

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

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

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

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

Bid Securing Declaration Form

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

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID SECURING DECLARATION
Project Identification No.: _____

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

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.

2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f),of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.

3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:

   a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
   b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
   c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

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

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

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

CONSTRUCTION METHODOLOGY

Name of Project : _____

Project Description : _____

Location : _____

MINIMUM SCOPE OF CONSTRUCTION METHODOLOGY

A. REMOVAL AND EXCAVATION WORKS

1. Chipping of existing R.C. Curb
2. Removal and disposal of existing pavement
3. Excavation of existing sea bed
4. Removal of existing bollard and fender
5. Excavation of backfilling works

B. PORT OPERATIONAL AREA WITH CONTINUOUS RORO RAMP

1. Supply & driving of Steel sheet pile including connectors & protective coating
2. Supply & installation of steel waling and splice plate
3. Supply & installation of dowel bars
4. Supply & placing of 3,500 psi concrete
5. Supply & installation of reinforcing steel bars
6. Supply & placing of gravel bedding
7. Supply & placing of 50 to 100 kg. rocks
8. Supply & placing of rubble concrete
9. Supply & placing of concrete blocks
10. Supply & installation of Tie-rod
11. Supply & installation of geotextile fabric
12. Supply & placing of fill materials
13. Supply & placing of aggregate base course
14. Construction of PCC Pavement
15. Supply and installation of Portlighting system
16. Supply & placing of steel ramp protection
17. Supply & installation of Rubber dock fenders
18. Supply & installation of mooring bollards and mooring cleat
19. Re-installation of newly removed mooring bollards
20. Restoration of demolished pavement

C. R.C. PIER EXTENSION

1. Supply Steel Pipe pile including protective coating
2. Handling, pitching & driving of Steel Pipe piles
3. Supply, fabricate band tip for the steel pipe piles
4. Supply & placing of concrete filler for SPP
5. Supply & installation of reinforcing steel cage for SPP
6. Supply & placing of 3,500 psi. concrete for the superstructure
7. Supply & installation of reinf. steel bar for the superstructure
8. Supply & installation of construction joints

9. Supply & installation of mooring bollards
10. Re-installation of newly removed rubber dock fender

NOTES:

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

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

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

Revised: September 2021

MANPOWER SCHEDULE

Name of Project : _____

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
Project Manager																
Project Engineer																
Materials Engineer II																
Construction Safety and Health Officer																
Foreman																
Specify other applicable positions, ie.:																
Carpenter																
Steelman																
Mason																
Electrician																
Rigger																
Others																

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

Revised: September 2021

EQUIPMENT UTILIZATION SCHEDULE

Name of Project : _____

Project Description : _____

Location : _____

EQUIPMENT (Minimum)	No. of Units	CONTRACT DURATION (_____ Calendar Days)															
		MONTHLY															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

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

Revised: September 2021

CASHFLOW BY QUARTER AND PAYMENT SCHEDULE

Name of Project: : _____

Project Description : _____

Location : _____

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

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

Revised: September 2021

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]