

**5. Wall taps**

Provide flush mounted] [surface mounted, 75-ohm, F-type connector, brown off-white, wall taps. Provide flush-mounted wall taps mounted in standard electrical outlet boxes, surface-mounted wall taps mounted in surface housings.

**LOCAL PROGRAMMING EQUIPMENT****1. Cameras**

Two general purpose, color, black and white, cameras for studio classroom locations.

**2. Lenses**

General purpose lenses, millimeter (mm), f stop (f/) zoom lenses mm to mm, and f/; wide-angle lenses, mm, f/.

**3. Digital Video Cassette Tape Recorders**

Two front-loading desktop, rack-mounted, digital video cassette tape recorders.

**4. Switcher**

Input, /output, [desktop rack-mounted, bridging [terminating] switcher.

**5. Fader**

Input one/output, desktop recessed-in-the-table fader.

**SUPPORT EQUIPMENT****1. Matching Transformers**

75-ohm female "F" fitting[s] connected to a 300-ohm spade tip matching transformer.

**2. Band Separators**

75-ohm female "F" fitting[s] connected to a VHF/UHF spade tip [and FM screw terminals] matching transformer with a band separator.

**3. Coaxial Connector Cable**

- a. 1830 mm, 75-ohm "F" fitting cable assembly.
- b. 3660 mm, 75-ohm "F" fitting cable assembly.
- c. 760 mm, 75-ohm "F" fitting cable assembly.

**4. Coaxial Cable Connecting Kits**

- d. 1830 mm, 75-ohm "F" fitting[s] connected to a 300-ohm spade tip matching transformer.
- e. 1830 mm, 75-ohm "F" fitting[s] connected to a 300-ohm VHF/UHF spade tip and FM screw terminals matching transformer with a band separator.

**5. Converters**

Set top converters equipped for output channel number 2, 3, 4 with 9, 18, 36, 58, 66 input channels.

## EXECUTION

### INSTALLATION

#### 1. Antenna System

##### a. Reception

Provide and orient antennas so that they supply the desired channels with maximum spurious-response rejection and minimal ghost imaging. When necessary to achieve the required input signal characteristics, provide and orient separate antennas for the best reception of each channel.

##### b. Antenna Mounts

Mount antennas on masts attached to a tower or wall or, antennas shall not be secured to a roof unless special authorization is obtained from the Contracting Officer and appropriate protection of the roof integrity is provided. Antennas shall not be attached to chimneys or vent pipes. Mast shall be securely mounted to adjacent structures with a minimum of three mounting brackets spread at 460 mm minimum intervals. Fasten the mounting brackets with [lag bolts a minimum of 9.525 mm diameter] [or] [expansion anchors sized for bolts a minimum of 9.525 mm diameter]. Mast attachments to mortar or grout joints are not permitted. Securely tighten the mounting hardware, antenna hardware, and the terminals.

##### c. Corrosion Protection and Wind Loading

All mounting and antenna assembly hardware shall be corrosion resistant. Design antennas and mounting devices to withstand a wind load of 200 km/h.

##### d. Anchoring

Antenna towers shall be either self supporting or free standing. Base of the tower shall be anchored to concrete legs. Foundations shall be designed for a maximum soil-bearing capacity of MPa and proportioned to provide a safety factor of 2.0 against uplift due to overturning, except that the minimum weight of the concrete footing alone, not considering the weight of the earth cover, shall provide a safety factor of 1.0. Towers shall be designed to resist forces generated by winds of km/h. Steel antenna towers and antenna supporting structures shall be designed, fabricated, and provided in accordance with applicable requirements of ANSI/EIA/TIA-222-F; except that for factory finish, the hot-dipped galvanizing process shall provide a zinc coating of 0.001218 g/mm<sup>2</sup> of surface.

##### e. Ladders, Obstruction Lights and Anticlimbing

Provide antenna towers with a system of horizontal members to serve as a ladder. Towers exceeding 6 meters in height shall be provided with a safety ladder device designed, fabricated, and provided in accordance with 29 CFR 1910.27. Provide appropriate anticlimb devices or security fencing around the tower] to prevent unauthorized climbing of the tower. When necessary, towers shall be provided with obstruction lights and markings in accordance with FAA AC-70/7460-1.

##### f. Lightning Protection and Grounding

Provide antenna system with lightning protection in accordance with NFPA 780. Provide grounding at the base or at the lowest point of the metallic towers. Connect at least two columns by No. 2/0 AWG copper cable to ground in accordance with NFPA 780. Structures adjacent to metallic towers and within their cone of protection do not require primary protection; but all metal

frames, ventilators, doors, and window frames shall be bonded together and grounded. Provide antenna lead-ins with spark gap protection connected to ground adjacent to the supporting structure of the antennas.

## 2. Headend

Provide headend equipment in the location identified on the drawings; mount the equipment in Contractor-provided racks.

## 3. Distribution System

Distribution system shall conform to cable routing and equipment locations as shown on the facility layout drawing. Installation shall be in accordance with ANSI C2.

### a. Exterior Aerial Cable System

(1) Existing pole line plant: Modify and expand the existing pole line, when required, to provide strength and clearance in conformance with ANSI C2. When pole line extension is required, provide in accordance with "Overhead Transmission and Distribution." Provide all new required materials and hardware.]

(2) New pole line plant: Provide in accordance with "Overhead Transmission and Distribution."

(3) Aerial cable: Do not bend the cable more than the minimum radius recommended by the manufacturer, based on the type of sheath used. Attach equipment housings containing the electronic equipment to the strand, and connect the cable shield to the housings. Ground the assembly in accordance with ANSI C2, when possible or to a driven ground rod assembly with a maximum 25 ohms resistance as measured by a ground resistance meter. This measurement must be satisfied before connecting the ground to the equipment housing. For a cable section exceeding 300 meters between equipment mountings, provide intermediate grounds. Provide subscriber service cable from the feeder cable to the building. For distances greater than 30 meters, provide cable with a strength member. Terminate the cable in a grounding block. Connect the grounding block to a grounding system having a maximum 25 ohms resistance.

### b. Exterior Conduit Systems

Provide the electronic equipment in weatherproof housings.  
Attach the housings to manhole, handhole walls with corrosion resistant hardware.

(1) Existing exterior conduit system: Use only manholes and empty conduits reserved exclusively for telecommunications cables. If it is necessary to provide electronic equipment between existing manholes, Contractor shall provide the necessary conduit and manholes, handholes in accordance with "Underground Electrical Works." The word "TELEPHONE" shall be cast in the top face of all new manholes, handhole covers. All manholes, handholes in streets must be rated AASHTO HB14 Class 20 wheel loading. Attach the weatherproof housings containing the electronic equipment to the manhole, handhole wall with corrosion-resistant hardware.

(2) New Exterior conduit system: Provide a new conduit system constructed in accordance with "Underground Electrical Works." The word "TELEPHONE" shall be cast in the top face of all new manholes, handhole covers. Attach the weatherproof housings containing the electronic equipment in new, Contractor-provided manholes, handholes. New manholes, handholes for such housings and equipment are not indicated on the drawings, but shall be

provided. All manholes, handholes in the streets must be rated AASHTO HB Class 20 wheel loading.

(3) Exterior cable in exterior conduit: Do not bend cable more than the minimum radius recommended by the manufacturer, based on the type of sheath used. Connect cable conductors to the electronic equipment, and connect the shield to the housing. Provide subscriber service cable to the building, and terminate in a grounding block. Provide and connect grounding block to a grounding system, having a maximum 25 ohms resistance.

#### c. Direct Buried Cable

Provide buried cable in accordance with "Underground Electrical Works." Provide CATV weatherproof housings/pedestals, handholes. The new housing/pedestals, handholes for the electronic equipment are not indicated on the drawings but shall be provided. Attach electronic equipment with corrosion-resistant fasteners in these housings/pedestals, handholes. Connect cable conductors to the electronic equipment, and connect the shield to the equipment housing. Provide and connect the equipment housing to a grounding system, having a maximum 25 ohms resistance. Provide subscriber service cable to the building, and terminate in a grounding block. Provide and connect the grounding block to a grounding system, having a maximum 25 ohms resistance.

#### d. Grounding Block

Provide the grounding block [inside] [outside]. Ground this device [according to the requirements of ANSI C2] [to a continuous length of metal cold water pipe without insulating joints and to a ground rod assembly driven a minimum of 150 mm below the surface of the surrounding earth]. Resistance, as measured by a ground resistance meter, shall be a maximum of 25 ohms.

#### e. Interior Cable

Provide interior cable in conduit in compliance with NFPA 70 and in accordance with "Interior Wiring System." Provide cable to grounding blocks, to line tap-off's, and to wall taps.

#### 4. TV [and FM] Receivers

Provide required coaxial connector cable or kits to connect one existing TV receiver located within 1825 mm from the wall tap.

#### SIGNAL SURVEY

Conduct a signal survey to determine the best antenna location and orientation and the type of antennas required for receiving desired signal levels and rejection of undesired signals.

## FIELD TESTING

### 1. Ground Rod Tests

Test ground rods for ground resistance value before the wire is connected. Use a portable ground testing megohmmeter to test each ground or group of grounds. Instrument shall be equipped with a meter reading directly in ohms or fractions thereof to indicate the value of the ground electrode under test.

### 2. System Pre-test

Upon completing installation of the CATV system, the Contractor shall align and balance the system and shall perform complete pretesting. During the system pre-test, Contractor utilizing the approved spectrum analyzer or signal level meter shall verify that the system is fully operational and meets all the system performance requirements of the specification. Contractor shall measure and record the video and audio carrier levels of each channel at each of the following points in the system:

- a. Antenna outputs.
- b. Preamplifier outputs.
- c. Headend output.
- d. Distribution amplifier inputs and outputs.
- e. Last outlet of each section of cable.
- f. A random sampling of 25 percent of the outlets.

### 3. Acceptance Tests

Contractor shall notify the Contracting Officer of system readiness 10 days prior to the date of acceptance testing. CATV system shall be tested in accordance with the approved test plan in the presence of the Contracting Officer's representative to certify acceptable performance. System test shall verify that the total system meets all the requirements of the specification and complies with the specified standards. Deficiencies revealed by the testing shall be corrected and revalidated by follow-up testing.

## INSTRUCTIONS AND TRAINING

### 1. Instructions to Government Personnel

Supply the services of competent instructors to give complete instructions to designated personnel in the operation, adjustment, and maintenance of the CATV system and related equipment. Instructions shall include alarm indications, required corrective action, and pertinent safety requirements. Supply operational training for the local programming equipment. Orient the training specifically to the system provided. Number of training days (8-hour days) of instruction shall be for the CATV system and for the local programming equipment].

### 2. Training Documentation

Supply training manuals for each trainee and one additional copy for the library. Manuals shall describe in detail the information included in each training program. Lesson plans and list of reference material shall also be supplied.

**ITEM 21 : WIRE COMMUNICATION AND SIGNAL SYSTEM****TELEPHONE SYSTEM****GENERAL**

Electrical General Requirements applies to this Item with the additions and modifications specified herein.

**DESCRIPTION OF WORK**

The telephone/data system shall consist of an interior system of conduits, outlet, boxes, and junction boxes. While, Local Telephone Company as provider for PABX interconnection for data /voice, router / WI-Fi modem with necessary Cat-6 cables.

These details as indicated in the plans should be coordinated to local telephone company as the provider. Any deviation of the plans and specification shall be brought to the attention of the Engineer for resolution.

**PRODUCTS****CONDUIT AND FITTINGS**

- a. Conduit shall be polyvinyl-chloride conduit (PVC) where specified, shall be heavy wall, high impact resistant Schedule 40, with factory made bends, couplings and fittings. PVC cement for joints shall be of the same brand as for the PVC pipe.
- b. No conduits shall be used in any system smaller than 20mm (1/2") diameter electric trade size, nor shall have more than four (4) 90 degree bends in any one run and where necessary, pull boxes shall be provided as directed.
- c. No wire shall be pulled into any conduit until the conduit system is completed in all details, in the case of concealed work until all rough plastering masonry has been completed, and in the case of exposed work until the conduit work has been completed in every detail.
- d. The ends of all conduits shall have tightly plugged to exclude plaster, dust and moisture while the construction of the building is in progress. All conduits shall be reamed to remove all burrs.

**OUTLETS, BOXES AND FITTINGS**

- a. At all outlets whatever kind, for all system, there shall be provided a suitable fitting, which shall be either a box or other device especially designed to receive the type of fitting to be mounted thereon.
- b. The Contractor shall consult with the Engineer as to the nature of the various fittings to be used before installing his outlet fittings, and shall conform strictly in the use of fittings, to the nature of the appliance to be mounted on them, so that the work, when the completed will be a finished design.
- c. All outlets on concealed conduit work provide galvanized pressed steel outlet boxes on standard make. These boxes shall be in all cases standard and where such boxes are not available on the market, special boxes shall be secured by the Contractor at his own expense. In general outlet boxes shall be at least 100mm diameter, 53mm deep and No. 16 minimum gauge.

## **JUNCTION AND PULL BOXES**

- a. Junction and pull boxes, of code gauge steel, galvanized shall be provided as indicated or as required for facilitating the pulling of wires and cables. Pull boxes as finished places shall be located and installed with the permission and to the satisfaction of the Engineer.
- b. All junction and pull boxes on exposed conduit work shall be provided with hubs for threaded pipe entry and covers provided with neoprene gaskets.

## **LOCAL TELEPHONE COMPANY PROVIDER / INTERCONNECTION OF PABX SYSTEM**

- a. All components, connections of Telephone Company shall conform to EIA/TIA standards.
- b. Cable terminals shall be the type acceptable to the Telephone Company. Terminals shall be Cat- 6 as required on the plans.

## **TELEPHONE INSTALLATION**

The telephone installation shall be mounted and as indicated on the plans.

## **HORIZONTAL CABLE**

All horizontal cabling shall be Category 6 network cables.

## **TELEPHONE / DATA OUTLETS**

All modular jacks shall be data grade Cat- 6.

## **SHOP DRAWINGS**

Prepare and submit complete shop drawings for the telephone system in accordance with the latest Local Telephone Company.

**ITEM 22 : MECHANICAL GENERAL REQUIREMENT****GENERAL**

This section applies to all Item of "MECHANICAL WORKS" except where specified in each individual section.

**WORK DESCRIPTION**

The work shall include the furnishing of equipment, materials, tools, labor, supervision, and other services required to install, complete, test and make operational the whole system as described on the Drawings and the Technical Specifications.

Specifically the work shall involve the following:

- a. To supply, deliver, install, wires/cables, conduit, circuit breaker and make operational the split type and ceiling cassette type inverter air conditioning units including bathroom exhaust fans for toilets as shown on the Drawings.
- b. To supply and install the refrigerant piping system and condensate drain lines including necessary insulation and hangers.
- c. To supply and install the electrical wiring connections from the AC supply provided by the Electrical Contractor which is located close to the point of installation. This shall include power and control wirings and interlocks with the thermostat control.

**SUBMITTALS**

Submit shop drawings, manufacturer's data and certificates for equipment, materials, and finish, and pertinent details for each system where specified in each individual section, and obtain approval before procurement, fabrication, or delivery of the items to the job site. Partial submittals are not acceptable and will be returned without review. Submittals shall include the manufacturer's name, trade name, catalogue model, or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable industry, and technical society publication references, years of satisfactory service, and other information necessary to establish contract compliance of each item the Contractor proposes to furnish. Photographs of existing installations and data submitted in lieu of catalogue data are not acceptable and will be returned without approval. Submittals shall be a minimum of 5 print copies. Submittals of the contractor shall be reviewed and returned within a minimum of 21 days, each stamped with appropriate action.

**1. Shop Drawings**

Drawings shall be a minimum of 350mm x 500mm in size, with a minimum scale of 1:100 except as specified otherwise. Drawings shall include floor plans, sectional views, wiring diagrams, and installation details of equipment; and equipment spaces identifying and indicating proposed location, layout and arrangement of items of equipment, control panels, accessories, piping, ductwork, and other items that must be shown to assure a coordinated installation. Wiring diagrams shall identify circuit terminals, and indicate the internal wiring for each item of equipment and the interconnection between each item of equipment. Drawings shall indicate adequate clearance for operation, maintenance, and replacement of operating equipment devices. If equipment is disapproved, drawings shall be revised to show acceptable equipment and be resubmitted.

## 2. Manufacturer's Data

Submittals for each manufactured item shall be manufacturer's brochure products, equipment drawings, diagrams, performance and characteristic curves, and catalogue cuts.

## 3. Standard Compliance

When materials or equipment must conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), American Society of Mechanical Engineers (ASME), Air Movement and Control Association, Inc. (AMCA), American Refrigeration Institute (ARI), and Underwriters' Laboratories (UL), proof of such conformance shall be submitted to the Engineers for approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization which is competent to perform acceptable testing and is approved by the Owner or his authorized representative. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item conforms to the specified organization's standard. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product, and the referenced standard and shall simply state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the reference standards listed. The edition or the revised version of such codes and standards current at the date twenty eight (28) days prior to date of bid submission shall apply. During Contract execution, any changes in such codes and standards shall be applied after approval by the Owner.

## 4. Codes, Inspection, Permits and Fees

a. The work under this contract shall conform to the latest requirements of:

- 1) Philippine National Building Code
- 2) Regulations of the Local Municipality

b. Nothing contained in these specifications or shown on the drawings shall be construed as to conflict with the National and local ordinances or laws. All such laws and ordinances are made a part of these Specifications.

c. All construction permits and fees for this work shall be obtained at the expense of the Contractor. The Contractor shall furnish the Owners and Engineers the final certificates of inspection and approval from the appropriate government authorities.

## OPERATION AND MAINTENANCE MANUAL

Furnish an operation and maintenance manual for each item of equipment. Furnish three (3) copies of the manual bound in hardback binders or an approved equivalent. Furnish one complete manual prior to the time that the equipment are performed and furnish the remaining manuals before the contract is completed. Inscribe the following identification on the cover: the words OPERATION AND MAINTENANCE MANUAL, the name and location of equipment or the building, the name of the Contractor, and the contract number. The manual shall include the names, addresses, and the telephone numbers of each subcontractor installing the equipment, and of the local representatives

for each item of equipment. The manual shall have a table of contents and be assembled to conform to the table of contents with the tab sheets placed before instructions covering the subject. The instructions shall be legible and easily read, with large sheets of drawings folded in. The manual shall include: wiring and control diagrams with data to explain detailed operation and control of each item of equipment; a control sequence describing start-up, operation and shutdown; description of the function of each principal item of equipment; the procedure for starting; the procedure for operating; shutdown instructions; installation instructions; maintenance instructions; lubrication schedule including type, grade, temperature range, and frequency, safety precautions, diagrams, and illustrations; test procedures; performance data; and parts list. The parts list for equipment shall indicate the sources of supply, recommended spare parts, and the service organizations which is reasonably convenient to the project site. The manual shall be complete in all respect for equipment, controls, accessories, and associated appurtenances provided.

## POSTED OPERATING INSTRUCTIONS

Furnish approved operating instructions for each system and principal item of equipment for the use of the operation and maintenance personnel. The operating instructions shall include wiring diagrams, control diagrams, and control sequence for each principal item of equipment. Operating instructions shall be printed or engraved and shall be framed under glass or in an approved laminated plastic and posted where directed by the Owner. Operating instructions shall be attached to or posted adjacent to each principal item of equipment and include directions for start up, proper adjustment, operating, lubrication, shut down, safety precautions, procedure in the event of equipment failure, and other areas as recommended by the manufacturer of each item of equipment. Operating instructions exposed to the weather shall be made of weatherproof materials or shall be suitably enclosed to be weather protected. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

## SAFETY

### 1. Rotating Equipment Safety

Couplings, motor shafts, gears and other exposed rotating or rapidly moving parts shall be fully guarded. The guards shall be cast iron or expanded metal. Guard parts shall be rigid and suitably secured and shall be readily removable without disassembling the guarded unit.

## INSTRUCTION TO OWNER'S PERSONNEL

When specified in other sections, the Contractor shall furnish the services of competent instructors who will give full instruction to the designated personnel in the adjustment, operation, and maintenance, including pertinent safety requirements of the equipment or system specified. Each instructor shall be thoroughly familiar with all the parts of the installation and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given during the first regular work week after the equipment or system has been accepted and turned over to the Owner for regular operation. The number of man-days (8 hours) of instruction furnished shall be as specified in other sections. When more than 4 man-days of instruction are specified, approximately half of the time shall be used for classroom instruction. All other time shall be used for instruction with the equipment or system. When significant changes or modifications in the equipment or system are made under the terms of contract, additional instruction shall be provided to acquaint the operating personnel with the changes or modifications.

## DELIVERY AND STORAGE

Equipment and materials shall be handled, stored, and protected to prevent damage before, during, and after installation, in accordance with the manufacturer's recommendations and as approved. Damaged or defective items shall be replaced without cost to the Owner.

## STANDARD PRODUCTS/SERVICE AVAILABILITY

### 1. Materials and Equipment

Materials and equipment shall be standard products of manufacturer regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. The standard products shall have been in satisfactory commercial or industrial use for seven years prior to bid opening. The seven year use shall include applications of equipment and materials under similar circumstances and of similar size as specified for the Project. The equipment shall be soled exclusively by a single, stable distributor with after sales capability.

### 2. Experience Required

The five (5) years experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturers' catalogues, or brochures.

### 3. Alternative Service Record

Products having less than a five-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturer's factory or laboratory tests can be shown.

### 4. Service Record

The equipment items shall be supported by service organizations. The Contractor shall submit a certified list of qualified permanent service organizations for support of the equipment which includes their addresses and qualifications. These service organizations shall reasonably be convenient to the equipment installation and able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

### 5. Manufacturer's Nameplate

Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

## SAFETY REQUIREMENTS

Belts, pulleys, chains, gears, couplings, projecting set screws, keys, and other rotating parts located so that any person can come in close proximity thereto shall be fully enclosed or properly guarded in accordance with OSHA 29 CFR 1910.219. High temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be properly guarded or covered with insulation of a type as specified herein. Items such as catwalks, ladders, and guardrails shall be provided where required for safe operation and maintenance of the equipment.

## MANUFACTURER'S RECOMMENDATIONS

Where installation procedures or any part are required to be in accordance with the manufacturer's recommendations of the material being installed, printed copies of these recommendations shall be furnished to the Owners and Engineers prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.

## **ELECTRICAL REQUIREMENTS**

Electrical components of mechanical equipment and systems such as motors, starters, and controls shall be provided under this item and shall be as specified herein and as necessary for complete and operable system. Extended voltage range motors will not be permitted. Interconnecting wiring for components of packaged equipment shall be provided as an integral part of the equipment.

### **ELECTRICAL MOTORS**

1. All electrical motors of sizes and types as specified for driving air conditioning and ventilating equipment shall be furnished and erected under this section. All motors shall be of proper power and speed to suit the specified makes of equipment. If other makes of equipment are accepted in any case, the proper adjustment of motor speed and power including affected changes in electrical system circuit breakers and wiring must be included without additional cost to the Owner. Technical data shall be submitted for approval before the equipment is purchased.
2. All motor ratings shall be as specified on the drawings.
3. Generally, all motors shall be constant speed, squirrel-cage type motors and energy efficient except as otherwise listed on plans. Single phase motors shall be capacitor start induction-run or split phase type as approved for the service.
4. All belt-connected motors shall have adjustable bases and set screws to maintain proper belt tension, and shall be provided with proper belt guards.
5. All motors and accessories shall comply in all respect with NEMA Standards. Types shall be as required by Local Code.
6. All motors shall be furnished with type "B" insulation and tropical fungus proofing according to NEMA standards.

### **CHANGES IN WORK DUE TO APPROVAL OF ALTERNATE MATERIALS**

Assure the cost of, and the entire responsibility for any changes in the work shown on the Contract Documents which may be occasioned by approval of materials proposed by the Contractor other than those specified.

### **GUARANTEE**

Furnish the Owner a written guarantee covering the satisfactory operation of the mechanical installation in all its parts for a period of one (1) year after date of final acceptance of work. During this period, repair or replace any defective work, materials or equipment furnished and installed without any cost to the Owner. Include with this guarantee certificate of every material supplier engaged by this trade of the project.

### **AS-BUILT DRAWINGS**

1. The Contractor shall, during the progress of work, keep record of all deviations of the actual installation from that shown on the Contract Drawings.
2. Upon completion of work, the Contractor shall submit two (2) copies of the as-built drawings, signed by the Contractor's Registered Professional Mechanical Engineer and Owner Project Inspector, indicating the work as actually and finally installed, including new information not originally shown in Contract Drawings.

3. Approval of as-built drawings by the Engineer shall be a requirement for final acceptance of the completed works and of final payment.

## QUALITY ASSURANCE

### 1. Surveys and Measurements:

- a. The Contractor shall base measurements, both horizontal and vertical, from established benchmarks. All work shall agree with these established lines and levels. Verify all measurements at site and check the correctness of same as related to the work.
- b. Should the Contractor discover any discrepancy between actual measurements and those indicated, which prevents following good practice or intent of the drawings and specifications, he shall notify the Owner's representative and shall not proceed with his work until he has received instructions from the Owner's representative upon referring the matter to the Engineer.

### 2. Drawings and Minor Modification:

- a. Drawings are diagrammatic and indicate the general arrangement of the system and work included in the contract. Drawings are not to be scaled. The drawing and details shall be examined for exact location of fixtures and equipment by verifying actual site conditions.
- b. The Contractor shall follow drawings in laying out work and check drawing of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions at all points. Where headroom or space conditions appear inadequate, Owner's representative shall be notified before proceeding with installation, if directed by the Owner's representative, the Contractor shall, without extra charge, make reasonable modifications and the layout as needed to prevent conflict with work of other trades or for proper execution of the work.
- c. Materials and Workmanship

All materials and apparatus required for the work, except as specified otherwise, shall be new of first class quality, and shall be furnished, delivered, erected, connected and finished in every detail, and shall be so selected and arranged as to fit properly into the building spaces. Where no specific kind or quality of materials is given, first class standard article shall be furnished.

**ITEM 23 : UNITARY AIR-CONDITIONING SYSTEMS****GENERAL**

"Mechanical General Requirements" applies to this Item with additions and modification specified herein.

**GENERAL REQUIREMENTS****1. Unitary Air-Conditioning System**

Air conditioning units in retail stores shall be supplied and installed by the tenant. Capacity of equipment shall not be less than that indicated. In the NFPA standards and SMACNA manuals referred herein, the advisory provisions shall be considered to be mandatory, as though the word "shall" had been substituted for "should" wherever it appears. Reference to the "authority having jurisdiction" shall be interpreted to mean the Engineer.

**2. Refrigerant Piping, Fittings and Accessories**

Refrigerant piping assembly as used in this section includes pipes, flanges, bolting, gaskets, valves, relief devices, fittings, and the pressure containing parts of other piping components. It also includes hangers and supports and other equipment items necessary to prevent overstressing the pressure containing parts.

**a. Piping**

ANSI 15 and ANSI B31.5. Compatible with fluids for which they are being used and capable of withstanding the pressures and temperatures of the service that they are handling.

**b. Tubing**

Refrigerant piping shall be seamless copper tubing, hard drawn, type K, ASTM B88. Tubing used for refrigerant service shall be cleaned, sealed, capped or plugged prior to being shipped from the manufacturer's plant. Fittings for copper tubing shall be wrought copper or bronze, brazing or solder joint type ANSI B16.18 or ANSI B16.22. Copper flared type tubing may be made only in annealed copper tubing ASTM B280 and in nominal sizes smaller than one- inch only for connection to equipment and no larger than 1-3/8 inches diameter for other connections. Flanges shall be of bronze ANSI B16.24.

**3. Corrosion Prevention**

Unless specified otherwise, equipment fabricated from ferrous metals that do not have a zinc coating shall be treated for prevention of rust with a factory coating or paint system that will withstand 125 hours in a salts-pray fog test except that equipment located outdoors shall be tested for 500 hours. The salt-spray fog test shall use a 20 percent sodium chloride solution. Immediately after completion of the test, the coating shall show no signs of blistering, wrinkling or cracking, no loss of adhesion, and the specimen shall show no signs of rust creep age beyond 1/8 inch on either side of the scratch mark. The film thickness of the factory coating or paint system applied on the equipment shall be not less than film thickness used on the test specimen.

#### 4. Safety Standards

- a. Design, Manufacture and Installation of Mechanical Refrigeration Equipment: ASHRAE Safety Code for Mechanical Refrigeration.
- b. Machinery Guards: Fully guard drive mechanisms, or other moving parts. Provide guards fabricated of steel and expanded metal, rigidly mounted, and readily removed without disassembly.

### MATERIAL REQUIREMENTS

#### UNITARY AIR-CONDITIONING SYSTEMS - SPLIT TYPE INVERTER

##### 1. General

The air-conditioning systems shall be designed, constructed, and rating tested in accordance with ARI Standard 210 for unitary air-conditioning equipment of capacities below 135,000 Btu's per hour and ARI Standard 300 for unitary equipment with capacities of 135,000 Btu's per hour and greater. Units shall be ARI certified. Units with capacities below 135,000 Btu's per hour shall be listed in the ARI Directory of Certified Unitary Air-Conditioners.

##### 2. Performance Rating

Cooling capacity of unit shall meet the sensible heat requirements and total requirements indicated. In selecting unit size, make true allowance for "sensible to total heat ratio" to satisfy required sensible cooling capacity. Submittals shall include catalogue selection data which accounts for sensible to total heat ratio, entering air-conditions at evaporator, and condenser air-conditions.

##### 3. Air Conditioners, Ceiling Cassette Type Inverter

The air conditioning system has a 4-way air distribution with auto sweep, it can cool an adjacent room using of the 4-way airflow outlets The fresh air intake device and additional outlet grille can condition the air in an adjoining room using one of its 4-way airflow sides..

##### 4. Compressors

Provide hermetic, semi-hermetic rotary, or screw type provided with all the minimum standard equipment and accessories listed therein. Compressor speed for compressors above 20 tons shall not exceed 1750 rpm. Provide compressors with automatic capacity reduction of at least 50 percent for units over 10 tons. Compressors shall start unloaded. Provide each compressor with devices to protect the compressor from short-cycling when shut-down by safety controls. Provide a pump-down cycle of the non-recycling start type for each compressor 20 tons and over. Provide compressors with vibration isolators. Compressor motor shall be suitable for electric power characteristics as indicated. Motor shall conform to NEMA NG-1. Motor starters shall conform to NEMA ICS. Motors shall be constant speed, squirrel-cage induction, open type or hermetically sealed, low starting current, high-torque type, and shall be furnished with reduced voltage or and magnetic across-the-line type motor starter with weather-resistant enclosures

## 5. Coils

- a. Cooling coils shall conform to ARI 410 and to paragraph entitled, Cooling Coils. Coils shall be the type indicated or specified herein.
- b. The air-cooled condenser coil shall be extended-surface fin-and-tube type with seamless copper or aluminum construction. Aluminum alloy conforming to ASTM B210, alloy 1100, shall be used for the tubes, and aluminum alloy conforming to chemical requirements of ASTM B209, alloy 7072, shall be used for fins and sheets. Fins shall be soldered or mechanically bonded to tubes and installed in a metal casing. Coils shall be air tested under water for leakage. After testing, dry coils for remote type units to remove free moisture, and cap to prevent entrance of foreign matter. Evacuate and seal coils at the factory.

## 6. Filter Boxes

Provide filter boxes with either hinged access doors or removable panels. Filter boxes shall have racks for filters arranged for angle pattern. Filters shall be of type indicated and shall conform to paragraph hereinafter entitled, "Filters".

## 7. Mixing Boxes

Mixing boxes shall be of physical size to match the basic unit and include equal sized flanged openings, each sized to handle full air flow. Arrangement of openings shall be as indicated. Provide openings with dampers of opposed blade type. All damper shafts shall be connected together by one continuous linkage bar. Arrange dampers for manual operation so that when one starts to close from its opened position, the other starts to open from its closed position.

## 8. Controls

### a. Condenser Controls

Provide load pressure control to insure condensing temperature for proper system operation at all ambient temperatures down to 40°F.

- b. Condenser Start-up Control Provide condenser with a start-up control package which permits start-up compressor regardless of low ambient temperatures. Package shall temporarily bypass system low pressure-start to permit start-up whenever minimum ambient temperature is below design evaporator coil suction temperature.

## 9. Refrigerant Circuits

Entire refrigerant circuit shall be dehydrated, purged, and charged with refrigerant and oil at factory. Factory oil charge shall be the full amount required for operation. Factory charge for refrigerant shall be the full amount required for operation.

## 10. Corrosion Protection

Units shall be factory corrosion protected in accordance with paragraph entitled, Corrosion Prevention.

## COOLING COILS

### 1. Direct-Expansion Coils

Direct-expansion coils shall be fin-and-tube type constructed of seamless copper or aluminum tubes and copper or aluminum fins mechanically bonded or soldered or helically wound to tubes. Casing and tube support sheets shall be not lighter than 16-gauge (0.0635-inch nominal thickness) galvanized steel, formed to provide structural strength. Suction header shall be seamless copper tubing or seamless or resistance welded steel tube with copper connection. Supply header shall consist of a distributor to distribute the refrigerant liquid through seamless copper tubing, equally to all the circuit in the coil. Tubes shall be circuited to insure minimum pressure drop and maximum heat transfer. Circulating shall permit refrigerant flow from liquid inlet to suction outlet without causing oil staging or restricting refrigerant flow in coil. Rack coil shall be tested at the factory under water at not less than 300 psi air pressure and shall be suitable for 200 psi working pressure. Each coil shall be completely dehydrated and scalded at the factory upon completion of pressure tests. Coil shall be mounted for counter flow service.

### 2. Filters

Filter shall be of the sectional or panel cleanable type and be capable of filtering the entire air supply.

### 3. Manometers

Provide inclined-type manometers for filter stations of 2,000 cfm capacity or larger including filters furnished as integral parts of air handling units and filters installed separately. Manometers shall be of sufficient length to read at least one inch of water column, shall be graduated in 1/10 inches, and equipped with spirit level. Equip each manometer with over-pressure safety traps to prevent loss of oil, and two three-way vent valves for checking zero setting.

## CLEANING, PAINTING AND IDENTIFICATION

Cleaning, painting and identification of piping shall be as specified under, "Painting" of "Building Works".

## IDENTIFICATION TAGS AND PLATES

Provide equipment, thermometers, valves, and controllers with tags numbered and stamped for their use. Plates and tags shall be of brass or suitable non-ferrous material, securely mounted or attached. Minimum letter and numeral size shall be 1/8 inch.

## EXECUTION

### INSTALLATION

Application and installation practices for unitary air-conditioning systems shall conform to the requirements of an acceptable industry standard for installation of unitary systems.

#### 1. General

Install equipment and components in a manner to insure proper and sequential operation of the equipment and its controls. Installation of equipment not covered herein or in manufacturer's instructions shall be installed as recommended by manufacturer's representative. Provide proper foundations for mounting of equipment, accessories, appurtenances, piping and controls including, but not limited to, supported vibration isolators, stands, guides, anchors, clamps, and brackets. Foundations for equipment shall conform to equipment manufacturer's

recommendation, unless otherwise shown in the drawings. Set anchor bolts and sleeves accurately using properly constructed templates. Anchor bolts shall be of adequate length and provided with welded-on plates on the head end embedded in the concrete. Level equipment bases, using jacks or steel wedges, and neatly grouted-in with a non-shrinking type of grouting mortar. Locate equipment so that working space is available for all necessary servicing such as shaft removal, disassembling compressor cylinders and pistons, replacing or adjusting drives, motors, or shaft seals, access to water heads and valves of shell and tube equipment, tube cleaning or replacement, access to automatic controls, refrigerant charging, lubrication, oil draining and working clearance under overhead lines. Provide electric isolation between dissimilar metals for the purpose of minimizing galvanic corrosion.

## 2. Unitary Air-Conditioning System

Install system as indicated, in accordance with the requirements of ASHRAE 15-76 and as recommended in the manufacturer's installation and operational instructions.

## 3. Electrical Work

Electric motor driven equipment specified herein shall be provided complete with motors, motor starters, and controls. Electrical equipment and wiring shall be in accordance with "Electrical General Requirements". Motor starters shall be provided complete with properly sized thermal overload protection and other appurtenances necessary for the motor control wiring required for controls and devices but not indicated.

## 4. Piping

### a. Piping Sleeves

Pipe sleeves shall be as Galvanized Iron, Schedule 20.

b. Provide refrigerant driers, sight glass liquid indicators, moisture indicators, and strainers in refrigerant piping for remote installations when not furnished by the manufacturer as part of the equipment.

c. Locate strainers close to equipment they are to protect. Provide a strainer in the common refrigerant liquid supply to two or more thermal valves in parallel when each thermal valve has a built-in strainer. Install strainers with screen down and in direction of flow as indicated on strainers body.

d. Solenoid valves shall be installed in horizontal lines with stem vertical and with flow in direction indicated on the valve. If not incorporated as internal part of the valve, provide strainers upstream of the solenoid valve. Provide service valves upstream of the solenoid valve, upstream of the strainer, and downstream of the solenoid valve. Remove the internal parts of the solenoid valve when brazing the valve.

## 5. Auxiliary Drain Pans, Drain Connections, and Drain Lines

Provide auxiliary drain pans under all drain pans of the units located above finished ceilings or over mechanical or electrical equipment where condensate overflow over unit drain pan may cause damage to ceilings, piping, and equipment below. Provide drain lines for all drain and auxiliary drain pans. Trap the drain from bottom pan of air-conditioning units to insure complete pan drainage. Drain lines shall be full size of opening.

## 6. Air Filters

Provide access panels for all concealed valves, controls, dampers, and other fittings requiring inspection and maintenance.

## 7. Inspection Plates and Test Holes

Inspection plates and test holes where required in casings for air balance measurements shall conform to SMACMA High Pressure Low Velocity Duct Construction Standards. Test holes shall be a factory-fabricated, air-tight, non-corrosive test hole with screw cap and gasket. Extend cap through insulation.

## 8. Flashing and Pitch Pockets

Provide flashing and pitch pockets for equipment support and roof penetrations and flashing where piping or ductwork passes through exterior walls.

## FIELD TESTS AND INSPECTIONS

### 1. Tests

All tests shall be performed and materials and equipment required for test shall be furnished by the Contractor. Tests after installation and prior to acceptance shall be performed in the presence of a representative of the Owner and subject to his approval. Equipment and material certified as having been successfully tested by the manufacturer in accordance with referenced specifications and standards will not require retesting before installation. Equipment and materials not tested at the place of manufacturer will be tested before or after installation, as applicable, where necessary to determine compliance with referenced specifications and standards.

### 2. Leak Testing

Upon completion of installation of the air-conditioning equipment, test all factories as well as field refrigerant piping with an electronic-type leak detector to acquire leak tight refrigerant systems. If leaks are detected at the time of installation or during the guarantee period, remove the entire refrigerant charge from the system, correct the leaks and retest the system.

### 3. Evacuation, Dehydration, and Charging

After system is found to be without leaks, evacuate the system using a reliable gauge and a vacuum pump capable of pulling a vacuum of at least 1 mm hg absolute. Evacuate system in strict compliance with the triple evacuation and blotter method or in strict accordance with equipment manufacturer's printed instructions. System leak testing, evacuation, dehydration, and charging with refrigerant shall comply with the requirement contained in an acceptable industry standard.

### 4. Start-Up and Operation Tests

The air-conditioning system and its components shall be started and initially placed under operation and checked to see that it is functioning correctly. Adjust safety and automatic control instruments as necessary to place them in proper operation and sequence. The operational test shall be not less than 8 hours.

## 5. Performance Tests

Upon completion of evacuation, charging, start-up, final leak testing, and proper adjustment of controls, the system shall be performance tested to demonstrate that it complies with the performance and capacity requirements of the specifications and plans. Test the system for not less than 8 hours, during which time hourly readings shall be recorded. At the end of the test period, the readings shall be averaged and the average shall be considered to be the system performance.

## 6. Sound Tests, Air-conditioners, Unitary, Split Type

Sound pressure level measurements shall be conducted on units designated by the Owner. Calculate sound power levels by ASHRAE Systems Handbook and Product Directory. Submit test results and calculations.

**ITEM 24 : EXHAUST EQUIPMENT****EXHAUST EQUIPMENT****GENERAL**

"Mechanical General Requirements" applies to this Item with additions and modification specified herein.

**SCOPE OF WORK**

1. Furnish materials that are new, of first-class quality.
2. Install all materials in strict accordance with the manufacturer's instructions and specifications.

**PRODUCTS****MATERIAL REQUIREMENTS****1. Bathroom Ceiling Mounted Exhaust Fan**

The exhaust fans shall be of the built-in ceiling type, ceiling mounted, suitable for operation. Sizes and capacities are based on models or approved equal. Brand and models indicated herein is for the purpose of establishing product quality, capacities and dimensions. Other brands satisfying the same shall likewise be accepted, subject to the approval of the owner and Engineer In-Charge. The capacities of the units shall be as shown on the Drawings.

**2. Wall Mounted Propeller Exhaust Fan (Optional)**

The wall-mounted propeller exhaust fan shall be direct-drive three blade type with a steel mounting plate. Capacity of the fan shall be as shown on the drawings. Fan blades shall be constructed of steel or aluminum. The fan hub shall be of heavy construction and shall be of steel or semi-steel, and the blades shall be riveted to the hub. Fan blade shall be quiet in operation and shall be statically and dynamically balanced at the factory. Motor and Drive shall be of the condenser motor type, tightly sealed and dust proof with non-lubricating ball bearings. The fan shall be provided with automatic shutters to prevent air from re-entering the fan when fan is off. The fan control switch shall be located as near as possible to the fan.

**EXECUTION**

1. Install the fan securely to the ceiling.
2. Install back-draft dampers and check to make sure they are free to open and close.
3. Connect power and check rotation of fan.

**ITEM 25 : DISTRIBUTION TRANSFORMER**

**SCOPE OF WORK**

The work to be done shall consist of supply, and delivering and installing distribution transformer completed in accordance with all the materials submitted by Tablas Island Electric Cooperative, including labor, tools and equipment and all incidental works as found necessary.

**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. American National Standard Institute - (ANSI)
2. Institute of Electrical and Electronics Engineers - (IEEE)
3. National Electrical Manufacturer Association - (NEMA)
4. Philippine Electrical Code - (PEC)  
 Philippine National Standard - (PNS)

b) Materials Requirements

- o Distribution Transformer,
- o Conventional
- o Pole Type
- o Oil Immersed
- o Self –Cooled
- o Single Phase , 1Ø , 60hz
- o 65 °C Temperature rise

Capacity	:	KVA
Primary Voltage	:	7.62 / 13.2 Y kV 2-2.5% taps FCAN and 2-2.5% taps FCBN Available on tap changer for de-energized operation
Primary BIL Rating	:	95kV
Secondary Voltage	:	120 /240V
Secondary BIL Rating	:	30kV
Percent Impedance	:	ANSI Standard
HV/LV Conductor	:	Copper / Aluminum
Insulating Fluid:		Mineral Oil
Core	:	Silicon Core
NLL	:	190W
LL	:	650W

c) **Standard Test Reports:**

1. **Routine Tests**

- Turn Ratio Test
- Voltage Ratio Test
- No Load Loss & Load Loss Test
- Impedance Voltage Test
- Applied Potential Test
- Induced Potential Test

2. **Type of Test**

- Impulse test
- Temperature Rise Test

**PRODUCTS (DISTRIBUTION TRANSFORMER)**

**External Features**

- High Voltage Bushing
- Low Voltage Bushing
- Tank and Cover
- Pressure Relief Valve
- Tank and Low Voltage Grounding Provision
- Externally Operated No-Load Tap Changer
- Radiators

**Internal Features**

- Core Coil Assembly
- Winding Material
- Insulating Di-Electric Fluid
- Coil Support

**PRODUCTS (GENERAL DESCRIPTION)**

1. **High Voltage Bushing**, the cover mounted and tank - wall high voltage bushing are made of wet process porcelain suitable for both copper and aluminum conductors.
2. **Low Voltage Bushing**, single or double eyebolt or spade terminal made of wet process porcelain.
3. **Tank and Cover**, manufactured from hot-rolled steel sheets and pressure tested to ensure a leak free enclosure. Grit blasted or chemically treated to remove every trace of scale, rust or oil, for better paint adhesion. Outer and inner surfaces are primed with epoxy primer for rust prevention and the outer surface is coated with polyurethane.
4. **Pressure Relief Valve**, gradually releases excess pressure and designed for outdoor condition.
5. **Tank and Low Voltage Grounding Provisions**, provided to help prevent damage to the transformer during electrical surges.
6. **Externally Operated No-Load Tap Changer**, provides up to five (5) primary voltage for convenient changing of high voltage tap connection at no-load.
7. **Radiators**, made of hot-rolled steel sheets these are provided for higher KVA units for added cooling surface.

8. **Core Coil Assembly**, uses a superior transformer insulation system and is permanently centered in the tank using a close fitted steel frame. Materials used for our coils, are wither silicon-iron for our Blue and Silver series or Amorphous metal for our gold line.
9. **Winding Material**, distribution transformer uses a combination of standard copper-aluminum or copper-copper winding materials.
10. **Insulating –Di- Electric Fluid**, used are either mineral oil or an environment friendly high fire point fluid.
11. **Coil Support**, used compatible materials to hold the coil in place and restraint it during short circuit-circuit conditions. Core clamps and clamp angles are also used to ensure that the core and windings are effectively secured even during mechanical stresses.

## **EXECUTION**

### **INSTALLATION**

Shall be in accordance with the code and requirements specified herein.

### **GROUNDING**

Ground all exposed non-current-carrying metallic parts of electrical equipment.

## **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 26 : SOLAR PANEL CONNECTED ON GRID**

**SCOPE OF WORK**

The scope of works includes Supply, Installation, Testing and Commissioning of Roof-Deck Mounted On-Grid PV Solar Panel. All necessary, feasibility study, Civil work, Mounting of Module Structures, PV Module Installation, Inverter Installation, DC/AC Cabling and interconnections, installation of Lightning Arrester and Earthing System according to standards, Net Metering, and repairs of all necessary inspections from Tablas Island Electric Cooperative as part of Pre-Commissioning, if any, and Commissioning of PV Solar Panel shall be subject to supplier scope including labor, tools and equipment and all incidental work if required.

**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. Philippine Energy Regulatory Commission - (PERC)
2. Department of Energy - (DOE)
3. Renewable Energy Law (RA No. 9513) - (REL)
4. Philippine Electrical Code - (PEC)  
Philippine National Standard - (PNS)
5. Confederation of Solar Developers of the Philippines - (CSDP)
6. Philippines Solar Power Alliance - (PSPA)

b) Materials Requirements of Solar Panel PV

1. Solar PV modules and array
2. Module mounting structure
3. Junction Boxes
4. Power Conditioning Unit
5. DC & AC Switches
6. Cables and installation accessories
7. Earthing and lightning protection
8. Solar Meter and Net Meter

### **Solar PV Modules and Array:**

Solar modules shall be Crystalline (Mono/Poly) (or) Thin Film (or) Concentrator PV modules type. The peak power output of the PV Module shall be min 550Wp under STC. Module Voc shall be minimum 40.10V. The power output of the PV module must be reported under standard test conditions (STC).

The mechanical structure shall withstand gusts of wind / cyclonic wind up to 185 km/hr from the back side of the panel.

Module Junction box (weather proof), where the module terminals shall be interconnected and output taken, shall be designed for long life outdoor operation in harsh environments as per the relevant specifications and protected against surges. It should have a provision for "Opening" for replacing the cable, if required.

The modules must be installed according to the supplier's work oriented.

PV modules used in solar power must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.

### **Module Mounting Structure:**

The PV modules will be mounted on roof deck which can withstand loads of modules and high wind velocities up to 185 km per hour. The support structure used in the solar power will be hot dip Galvanized Iron (G.I).

### **The "Mounting Structure" should have the following features:**

- The modules support structure shall be Mild Steel /hot dipped Galvanized Iron for holding the PV modules. The size of angle iron as prescribed by the supplier.
- Each panel frame structure shall be so fabricated as to be filled on the roof deck on its legs. The legs of the structure shall be fixed in the roof deck. The foundation shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly and shall withstand a maximum wind speed of 185 km/hr.
- All nuts and bolts should be made of good quality Stainless Steel.
- The structure should be designed to allow easy replacement of any module.

- The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels.
- The minimum clearance of the lowest part of the module structure and the developed ground level shall not be less than 500 mm.

#### **Junction Boxes:**

The junction boxes must be dust proof, vermin proof, and waterproof, and they must be manufactured of FRP / Thermoplastic. The terminals must be linked to a copper bus bar configuration of appropriate size. The junction boxes must have sufficient cable entry ports with proper cable glands for both incoming and outgoing cables. For simple identification, suitable markings must be supplied on the bus bar, and cable ferrules must be installed at the cable termination positions. Each main junction box must include an adequate rated blocking diode. The junction boxes must be of high quality.

#### **Power Conditioning Unit (PCU):**

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit (PCU)". In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter,

#### **DC & AC Switches**

##### **DC SIDE:**

- MCB of suitable rating shall be provided for connection and disconnection of array & PCU for maintenance purpose.
- Switches and Circuit Breakers on the DC side shall be DC rated or they shall be sufficiently de-rated, if AC rated switches are used.

##### **AC SIDE:**

MCB of suitable rating shall be provided for connection and disconnection of PCU & load.

### **Cables and accessories:**

All the cables shall be supplied conforming to IEC 60227/IS 694 & IEC 60502/IS 1554 shall be of kV grade as per requirement. Only PVC copper cables shall be used.

The size of the cables between array interconnections, array to junction boxes, junction box to PCU, PCU to AC Distribution Box etc shall be selected to keep the voltage drop and losses to the minimum. Permissible Wire Drop on DC side shall be  $\leq 1\%$

### **Earthing and Lightning Protection:**

**Earthing:** The array structure of the PV shall be grounded properly using an adequate number of earthing kits. All metal casing or shielding of the solar power shall be thoroughly grounded to ensure safety of the solar power.

**Lightning:** The SPV solar power

The SPV solar power shall be provided with lightning & over voltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc.

### **Solar Meter and Net Meter:**

A separate Energy Meter called Solar Meter shall be provided at the output of PCU to record the energy generation from the Solar power System. (This energy meter should not be integrated with PCU). Solar energy meter means a unidirectional meter to be installed at the delivery point of the solar power energy system to measure the solar electricity generated. This Energy Meter should be tested along with the Net Meter.

**Net meter:** As per (Renewable Energy and Net Metering) Regulations 2020, net metering system is to be provided to the solar power consumer. Net meter means the bidirectional energy meter to be installed at the interconnection point of the consumer with the network of distribution licensee. Energy meters shall be installed and maintained in accordance with the provisions of the local electric cooperative. The Contractor /supplier shall maintain the Metering System as per coordination with local electric cooperative. The defective meter shall be immediately tested and rectified/ replaced. A solar meter and bidirectional energy meter suitable for the installed solar power shall be supplied and installed by the contractor after testing and sealing from respective supplier. Energy Meters must be provided with the necessary data cables if required. The solar

energy meter and net energy meter shall be of accuracy as given and CT and PT shall be utilized according to metering regulations 2006 and its amendment.

### Mechanical and Design Specification Mono-Crystalline PV Modules (550W)

Cell Type	Gallium – doped Mono c-SI PERC, Half cut cells, 182mm
No. of cells	144
Glass	3.2mm, high transmission , AR coated , tempered
Encapsulation	EVA
Back cover	White back sheet
Junction box	IP 68 rated
Frame	35mm anodized Aluminum Alloy
Cable	1* 4mm <sup>2</sup> , 350mm length customized
Connectors	MC 4 /MC 4 compatible
Dimension	2278mm * 1133mm * 35mm
Weight	27kg
Hail resistance	Max Ø25mm at 23 m/s
Wind load	2400 Pa / 244 kg/m <sup>2</sup>
Mechanical load	5400 Pa / 550 kg/m <sup>2</sup>

### Temperature Ratings

Operating Temperature ( °C )	- 40 to+ 85
Temp. coefficient of $P_{max}$ (% / ( °C ) )	-0.35
Temp. coefficient of $V_{oc}$ (% / ( °C ) )	-0.275
Temp. coefficient of $I_{sc}$ (% / ( °C ) )	-0.045
Non. operating temp. NOCT ( °C )	45+/- 2

### Electrical Specifications (STC) AE550MD-144

Normal Max. Power $P_{max}$ (Wp)	550
Maximum operating voltage $V_{MPP}$ (V)	42.57
Maximum operating current $I_{MPP}$ (A)	12.92
Open circuit voltage $V_{oc}$ (V)	51.44
Short circuit current $I_{sc}$ (A)	13.67
Module efficiency $\eta$ (%)	21.31

\*STC Standard test condition (Irradiance 1000 W/m<sup>2</sup>, Cell temperature 25 °C and air mass of AM 1.5)

### Electrical Specifications (NOMT\*) AE550MD-144

Normal Max. Power $P_{max}$ (Wp)	414
Maximum operating voltage $V_{MPP}$ (V)	40.10
Maximum operating current $I_{MPP}$ (A)	10.34
Open circuit voltage $V_{oc}$ (V)	47.80
Short circuit current $I_{sc}$ (A)	10.94

## **EXECUTION**

## **INSTALLATION**

The installation of solar power PV modules on the roof deck must be installed as supplied, delivered and installed according to the supplier.

## **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 27 : 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.

2438 (8 ft.)

1218 (4 ft.)

(Name of Project and Location)

CONTRACTOR .....  
 EFFECTIVITY OF CONTRACT .....  
 CONTRACT COMPLETION DATE .....  
 CONTRACT COST .....  
 IMPLEMENTING OFFICE .....  
 SOURCE OF FUND .....

PHILIPPINE  
PORTS  
AUTHORITY



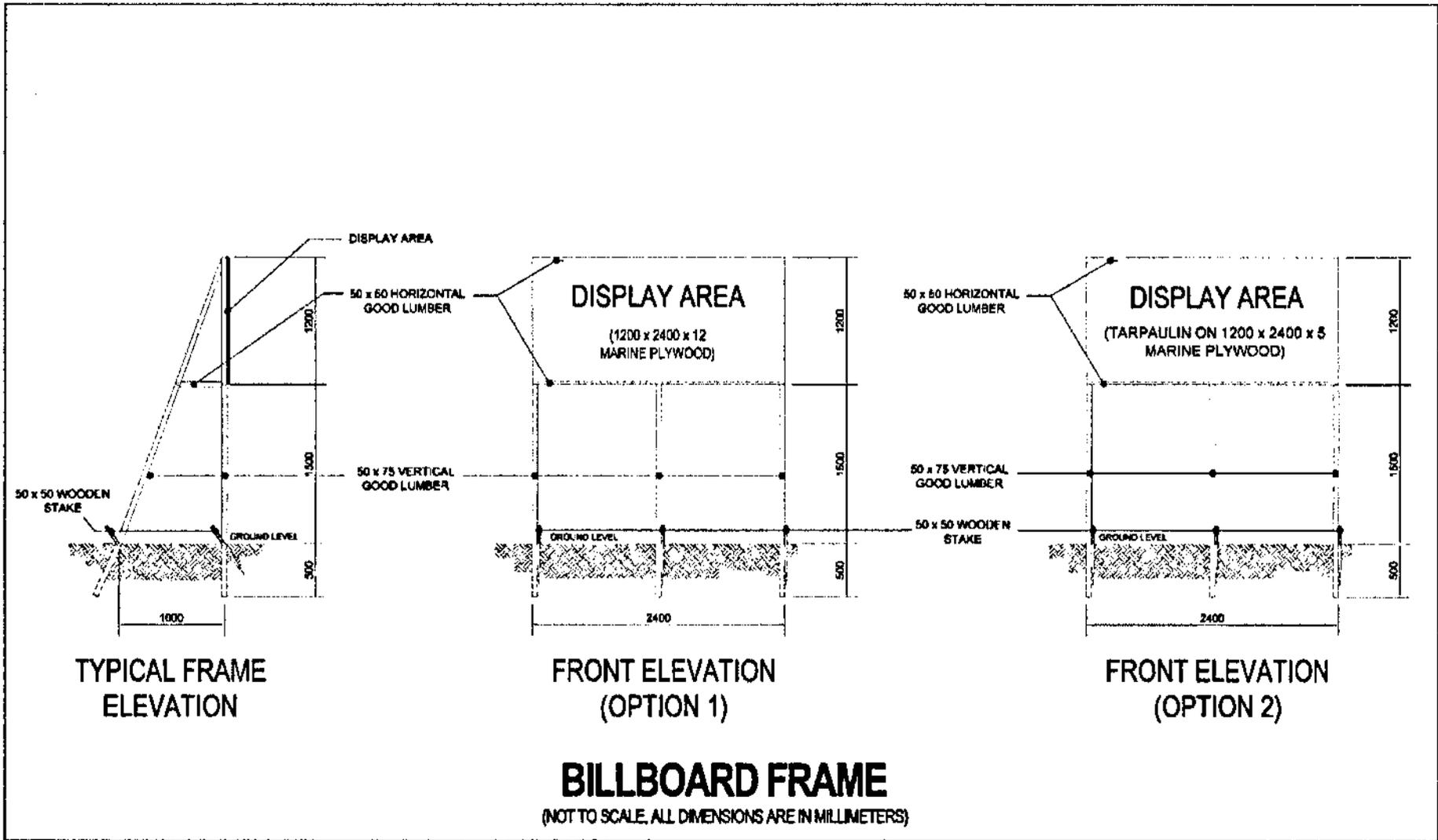
37mm YELLOW BORDER LINE

WHITE BACKGROUND

ARIAL BLACK TEXT

ARIAL DARK BLUE TEXT

# STANDARD PROJECT BILLBOARD



**ITEM 28 : 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.

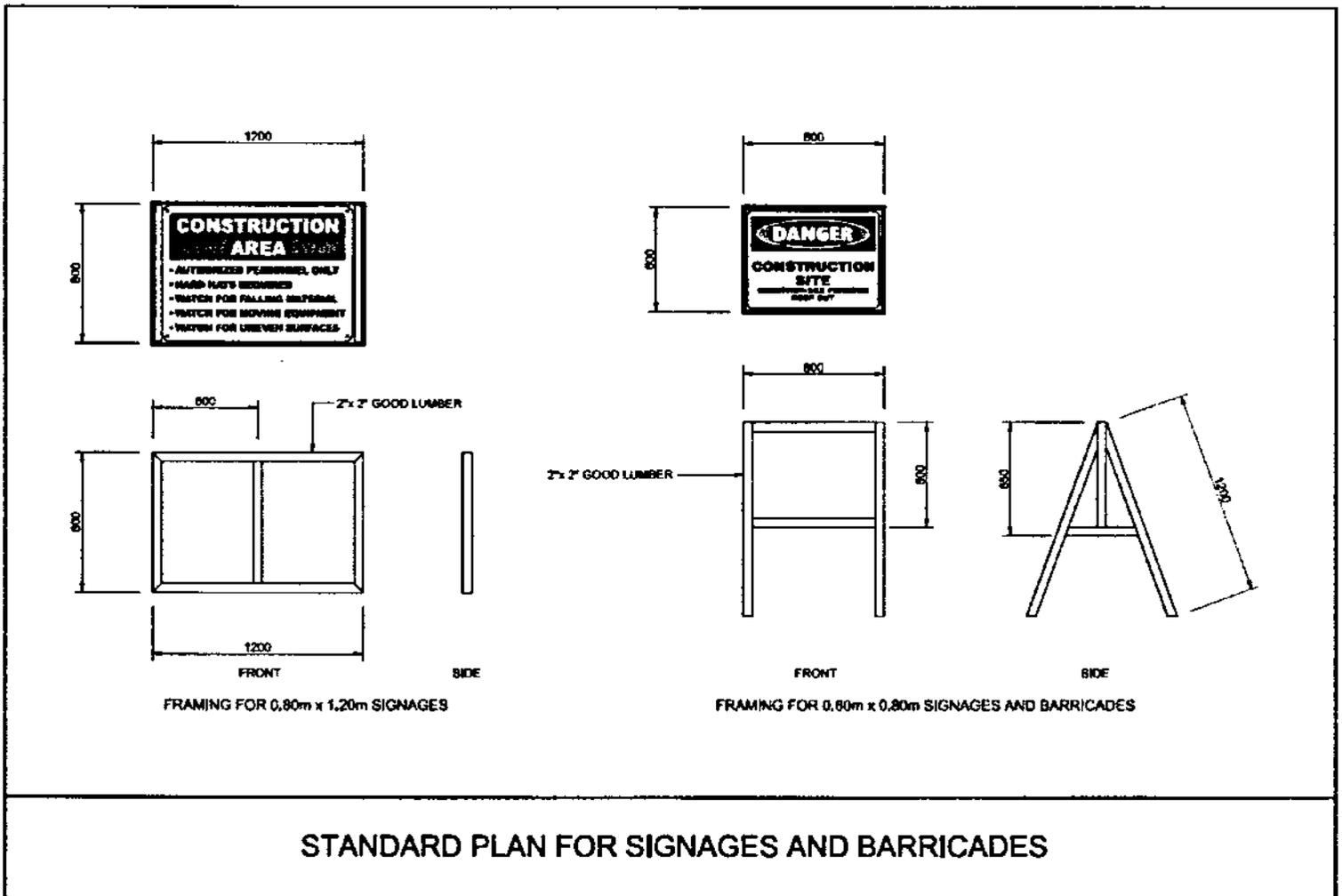
**SPECIFICATION**

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 1/2 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.



**SECTION VII**

**DRAWINGS**  
**(APPROVED PLANS)**

# SECTION VII

## DRAWINGS AND APPROVED PLANS

(SEE ISSUED APPROVED PLANS)

**LIST OF DRAWINGS:**

<b>ARCHITECTURAL</b>	
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A - 02 of 06	<ul style="list-style-type: none"> <li>• GROUND FLOOR PLAN</li> <li>• ROOF DECK FLOOR PLAN</li> <li>• GROUND FLOOR REFLECTED CEILING PLAN</li> <li>• ROOF DECK REFLECTED CEILING PLAN</li> <li>• GROUND FLOOR WALL PARTITION LAYOUT</li> <li>• ROOF DECK WALL PARTITION LAYOUT</li> </ul>
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A - 05 of 06	<ul style="list-style-type: none"> <li>• PWD TOILET DETAIL</li> <li>• SCHEDULE OF DOORS</li> <li>• SCHEDULE OF WINDOWS</li> </ul>
A - 06 of 06	<ul style="list-style-type: none"> <li>• STEEL LADDER DETAILS</li> <li>• STEP DETAILS</li> <li>• RAMP DETAILS</li> <li>• PLANT BOX DETAILS</li> <li>• SLOP SINK DETAILS</li> <li>• MIRROR DETAILS</li> <li>• FILL-UP BAR DETAILS</li> <li>• GRAB BAR DETAILS</li> </ul>
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S - 03 of 04	<ul style="list-style-type: none"> <li>• ROOF DECK FRAMING PLAN</li> <li>• PUMP HOUSE ROOF FRAMING PLAN</li> <li>• TYP. BEAM REINFORCEMENT AT BEAM SUPPORT</li> <li>• TYP. SLAB REINFORCEMENT DETAIL</li> <li>• TYP. DETAIL OF PUMP HOUSE CANOPY</li> <li>• TYP. DETAIL OF PARAPET</li> <li>• LINTEL BEAM DETAIL</li> <li>• STIFFENER COLUMN DETAIL</li> </ul>
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S - 06 of 07	<ul style="list-style-type: none"> <li>• CONCRETE PAVEMENT LAYOUT PLAN</li> </ul>
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E - 02 of 06	• ROOF DECK LIGHTNING PROTECTION LAYOUT PLAN • LEGEND
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<b>GC - 07 of 07</b>	<ul style="list-style-type: none"> <li>• SEWER AND STORM WATER DRAINAGE LAYOUT PLANS</li> <li>• COLD WATER SUPPLY LAYOUT PLANS</li> <li>• DETAILS OF SEPTIC TANK</li> <li>• DETAILS OF CATCH BASIN</li> <li>• DETAIL OF TRENCHING, BEDDING &amp; BACKFILLING OF PIPES</li> <li>• SCHEDULE OF PIPES (SEWER LINE)</li> <li>• SCHEDULE OF PIPES (WATER LINE)</li> <li>• GENERAL NOTES AND SPECIFICATIONS</li> <li>• MATERIAL SPECIFICATIONS</li> </ul>

**SECTION VIII**

**BILL OF QUANTITIES**  
**and**  
**ATTACHMENTS**

**BID SUMMARY**  
**LOOC PORT (MALBOG) IMPROVEMENT PROJECT**  
 Port of Looc, Brgy. Malbog, Looc, Romblon



NO.	DESCRIPTION OF WORK	AMOUNT (Pesos)
BILL NO. 1	GENERAL EXPENSES	
BILL NO. 2	PASSENGER TERMINAL BUILDING, GUARDHOUSE, FENCE AND GATE	
<b>BID PRICE</b>		

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

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

\_\_\_\_\_  
 Date

**BILL OF QUANTITIES**  
**LOOC PORT (MALBOG) IMPROVEMENT PROJECT**  
 Port of Looc, Brgy. Malbog, Looc, Romblon



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
BILL NO. 1	<b>GENERAL EXPENSES</b>				
1.01	Mobilization, demobilization and cleaning	lot	1		
1.02	Rental of temporary site office and residence for the Engineer and staff	mo.	10		
1.03	Maintain temporary site office and residence for the Engineer and staff	mo.	10		
1.04	Provide Construction Safety and Health Program in the execution of the project	mo.	10		
<b>TOTAL FOR BILL NO. 1</b>					

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

**BILL OF QUANTITIES**  
**LOOC PORT (MALBOG) IMPROVEMENT PROJECT**  
 Port of Looc, Brgy. Malbog, Looc, Romblon



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
<b>BILL NO. 2</b>	<b>PASSENGER TERMINAL BUILDING, GUARDHOUSE, FENCE AND GATE</b>				
2.01	Remove existing temporary structures including gate and fence	lot.	1		
2.02	Chip-off and dispose existing R.C. Curb, flush to required elevation and smoothen with mortar	l.m.	113		
2.03	Remove and dispose existing pavement prior for construction of PTB, and other building facilities	sq.m.	870		
2.04	Scraping of existing fill materials for building foundations, drainages, and electrical system	cu.m.	238		
2.05	Excavation and backfilling works for building foundations, drainages, Septic vault & Electrical works	cu.m.	277		
2.06	Subgrade preparations	sq.m.	1,192		
2.07	Supply and apply soil treatment	sq.m.	298		
2.08	Supply, place and compact gravel bedding	cu.m.	26		
2.09	Supply, spread and compact aggregate base course	cu.m.	187		
2.10	Supply, spread and compact aggregate sub-base course	cu.m.	177		
2.11	Supply & place 4,000 psi. concrete for building structure	cu.m.	177		

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

**BILL OF QUANTITIES**  
**LOOC PORT (MALBOG) IMPROVEMENT PROJECT**  
 Port of Looc, Brgy. Malbog, Looc, Romblon



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
2.12	Supply & install steel reinforcement for building structure	kg.	32,596		
2.13	Construct 4,000 psi. concrete slab and ramp on-fill including reinforcement	sq.m.	258		
2.14	Construct 150mm thick CHB wall including reinforcement	sq.m.	462		
2.15	Construct 100mm thick CHB wall including reinforcement	sq.m.	77		
2.16	Supply and place 13mm thick cement Plaster finish	sq.m.	755		
2.17	Supply and apply Elastomeric paint (2-coats)	sq.m.	755		
2.18	Supply and apply Flat latex paint (2-coats)	sq.m.	133		
2.19	Supply and apply Quick dry enamel paint (2-coats)	sq.m.	30		
2.20	Supply and apply water proofing for toilets, footbaths, stair wells, roof deck and canopies	sq.m.	406		
2.21	Supply and install Aluminum Composite Panels and accessories	sq.m.	276		
2.22	Supply and install 0.6m x 0.6m Unglazed Ceramic Tile Finish	sq.m.	200		
2.23	Supply and install 0.6m x 0.6m Non-Slip Ceramic Tile Finish	sq.m.	34		
2.24	Supply and install 0.3m x 0.6m Ceramic wall tiles	sq.m.	117		

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

**BILL OF QUANTITIES**  
**LOOC PORT (MALBOG) IMPROVEMENT PROJECT**  
 Port of Looc, Brgy. Malbog, Looc, Romblon



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
2.25	Supply and install Tactile Blocks	sq.m.	3		
2.26	Supply and install Synthetic Granite	sq.m.	5		
2.27	Supply and place Stair Nosing	l.m.	10		
2.28	Supply and install Aluminum Clip-in Perforated Panel including accessories (1.20 x 0.60 x 0.07m)	sq.m.	109		
2.29	Supply and install 12mm thk. Gypsum board on 0.40mm thk galvanized steel ceiling suspension system at 0.40m O.C. (furring carrying channel) and suspension rod	sq.m.	133		
2.30	Supply, fabricate and install stainless steel and aluminum materials, buffed finish of various sizes including accessories	lot	1		
2.31	Supply and install fabricated 1.5 mm thk. Aluminum Framed Doors and Windows including accessories	lot	1		
2.32	Supply and install fabricated Marine Plywood Finish Flush Doors, and PVC Louver Door including door jambs, hinges, locksets and other accessories	lot	1		
2.33	Supply and install fabricated powder coated aluminum louver Door and windows including accessories	lot.	1		

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

**BILL OF QUANTITIES**  
**LOOC PORT (MALBOG) IMPROVEMENT PROJECT**  
 Port of Looc, Brgy. Malbog, Looc, Romblon



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
2.34	Supply, fabricate and install Phenolic anti-bacterial water proof Toilet partition 12mm thk, including stainless hinges, lock indicators, bottom support door knobs and coat hooks	lot	1		
2.35	Supply and install Toilet Fixtures and accessories	lot	1		
2.36	Supply and install water line pipes and fittings including water tank, pressure tank, booster pump, transfer pump, and other accessories.	lot	1		
2.37	Supply and install sewerage pipes and fittings including accessories.	lot	1		
2.38	Supply and install drainage pipes and fittings including accessories	lot	1		
2.39	Construct septic vault including fittings and accessories	no.	1		
2.40	Construct catch basin including accessories	no.	6		
2.41	Construct lateral drainage including trench grate and accessories	l.m.	80		
2.42	Construct catch drain manhole including trench grate and accessories	no.	7		
2.43	Construct portland cement concrete pavement (300mm thk.) including reinforcements.	sq.m.	835		
2.44	Supply, deliver and install wires and cables of various sizes	lot	1		
2.45	Supply, deliver and install conduit pipe including fittings of various sizes	lot	1		

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

**BILL OF QUANTITIES**  
**LOOC PORT (MALBOG) IMPROVEMENT PROJECT**  
 Port of Looc, Brgy. Malbog, Looc, Romblon



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
2.46	Supply, deliver and install wiring devices	lot	1		
2.47	Supply, deliver and install protective devices	lot	1		
2.48	Supply, deliver and install lighting fixtures	lot	1		
2.49	Supply, deliver and install lightning protection and accessories	lot	1		
2.50	Supply, deliver and install auxiliary system:				
	a) Community Antenna Television (CATV)	lot	1		
	b) Background Music / Paging Alarm (BGM/PA)	lot	1		
	c) Fire Detection Alarm System (FDAS)	lot	1		
	d) Telephone System	lot	1		
2.51	Supply, deliver and install airconditioning unit and other apurtenances	lot	1		
2.52	Construct Reinforced Concrete for Duct bank, Handhole, Pedestal post and solar lamp post foundation	lot	1		
2.53	Supply and deliver office furnitures and gang chairs	lot	1		
2.54	Supply, deliver and install PPA Logo for PTB and gate including accessories	lot	1		

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

**BILL OF QUANTITIES**  
**LOOC PORT (MALBOG) IMPROVEMENT PROJECT**  
 Port of Looc, Brgy. Malbog, Looc, Romblon



NO. (1)	DESCRIPTION OF WORK (2)	UNIT (3)	QTY. (4)	UNIT PRICE (Pesos) (5)	AMOUNT (Pesos) (4) x (5)
2.55	Supply, deliver and install distribution transformer including accessories and other incidental expenses	lot	1		
2.56	Supply, deliver and install 10.0m ht. single bar solar lamp post in hot dip galvanized with H150W Integrated Solar street light including accessories	set.	11		
2.57	Construct Guardhouse and Gate including other apurtenances	lot.	1		
2.58	Construct Security fence including accessories	l.m.	112		
2.59	Supply, deliver and install 29.43kwp Grid-Tied Solar Power Project including net metering and other accessories	lot.	1		
<b>TOTAL FOR BILL NO. 2</b>					

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

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

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

### **BILL NO. 1**

#### **GENERAL EXPENSES**

**Item 1.01 Mobilization, 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

### PASSENGER TERMINAL BUILDING, GUARDHOUSE, FENCE AND GATE

**Item 2.01 Remove existing temporary structures including gate and fence**

The quantity to be paid for shall be the actual lot of existing temporary structures including gate and fence 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 2.02 Chip-off and dispose 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 and disposed, flushed to deck level, 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 2.03 Remove and dispose existing pavement prior for construction of PTB, and other building facilities**

The quantity to be paid for shall be the actual area in square meter of existing pavement to be removed and disposed prior for construction of PTB, and other building facilities 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 Scraping of existing fill materials for building foundations, drainages, and electrical system**

The quantity to be paid for shall be the actual volume in cubic meter of existing fill materials for building foundations, drainages, and electrical system to be scraped 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 Excavation and backfilling works for building foundations, drainages, septic vault and Electrical system**

The quantity to be paid for shall be the actual volume in cubic meter materials to be excavated for building foundations, drainages, septic vault and Electrical system and backfilled thereafter 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 Subgrade preparations**

The quantity to be paid for shall be the actual area in square meter of subgrade preparations in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work.

**Item 2.07 Supply and apply soil treatment**

The quantity to be paid for shall be the actual area in square meter of soil ground applied with treatment 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 2.08 Supply, place, and compact gravel bedding**

The quantity to be paid for shall be the actual volume in cubic meter of gravel bedding, supplied, set-in-place 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 2.09 Supply, spread, and compact aggregate base course**

The quantity to be paid for shall be the actual volume in cubic meter of aggregate base course to be supplied, spread, and compacted in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 2.10 Supply, spread and compact aggregate subbase course**

The quantity to be paid for shall be the actual volume in cubic meter of aggregate subbase course to be supplied, spread, and compacted in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 2.11 Supply and place 4,000 psi concrete for building structure**

The quantity to be paid for shall be the actual volume in cubic meter of 4,000 psi concrete for building structure, 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 2.12 Supply and install steel reinforcement for building structure**

The quantity to be paid for shall be the actual weight in kilogram of reinforcing steel bars for building structure, 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 2.13 Construct 4,000 psi. concrete slab and ramp on-fill including reinforcements**

The quantity to be paid for shall be the actual area in square meter of 4,000 psi. concrete slab and ramp on-fill including reinforcements, 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 2.14 Construct 150mm thick CHB wall including reinforcement**

The quantity to be paid for shall be the actual area in square meter of 150mm thick CHB wall including reinforcement, 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 2.15 Construct 100mm thick CHB wall including reinforcement**

The quantity to be paid for shall be the actual area in square meter of 100mm thick CHB wall including reinforcement, 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 2.16 Supply and place 13mm thick cement plaster finish**

The quantity to be paid for shall be the actual area in square meter of 13mm thick cement plaster finish, 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 2.17 Supply and apply elastomeric paint (2-coats)**

The quantity to be paid for shall be the actual area in square meter of surfaces supplied and applied with elastomeric paint (2-coats) 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 2.18 Supply and apply flat latex paint (2-coats)**

The quantity to be paid for shall be the actual area in square meter of surfaces supplied and applied with flat latex paint (2-coats) 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 2.19 Supply and apply Quick dry enamel paint (2-coats)**

The quantity to be paid for shall be the actual area in square meter of surfaces supplied and applied with Quick dry enamel paint (2-coats) 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 2.20 Supply and apply water proofing for toilets, footbaths, stair wells, roof deck and canopies**

The quantity to be paid for shall be the actual area in square meter of water proofing for toilets, footbaths, stair wells, roof deck and canopies, supplied and applied 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 2.21 Supply and install aluminum composite panel and accessories**

The quantity to be paid for shall be the actual area in square meter of aluminum composite panel and accessories, 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 2.22 Supply and install 0.60m x 0.60m Unglazed Ceramic Tile Finish**

The quantity to be paid for shall be the actual area in square meter of unglazed ceramic Tile Finish (0.60m x 0.60m), 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 2.23 Supply and install 0.6m x 0.6m Non-Slip Ceramic Tile Finish**

The quantity to be paid for shall be the actual area in square meter of 0.6m x 0.6m Non-Slip Ceramic Tile Finish, 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 2.24 Supply and install 0.30m x 0.60m Ceramic Wall Tiles**

The quantity to be paid for shall be the actual area in square meter of ceramic wall tiles (0.30m x 0.60m), 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 2.25 Supply and install tactile Blocks**

The quantity to be paid for shall be the actual area in square meter of tactile blocks, 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 2.26 Supply and install Synthetic Granite**

The quantity to be paid for shall be the actual area in square meter of Synthetic Granite, 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 2.27 Supply and place Stair Nosing**

The quantity to be paid for shall be the actual length in linear meter of Synthetic Granite, supplied and place in accordance with the plans and specifications and accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Item 2.28 Supply and install Aluminum Clip-in Perforated Panel including accessories (1.20 x 0.60 x 0.07m)**

The quantity to be paid for shall be the actual area in square meter of Aluminum Clip-in Perforated Panel including accessories (1.20 x 0.60 x 0.07m), 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 2.29 Supply and install 12mm thick Gypsum board on 0.40mm thick galvanized steel ceiling suspension system at 0.40m O.C. (furring carrying channel) and suspension rod**

The quantity to be paid for shall be the actual area in square meter of 12mm thick Gypsum board on 0.40mm thick galvanized steel ceiling suspension system at 0.40m O.C. (furring carrying channel) and suspension rod, 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 2.30 Supply, fabricate, and install stainless steel and aluminum materials buffed finish of various sizes including accessories**

The quantity to be paid for shall be the actual lot of stainless-steel and aluminum materials buffed finish of various sizes including 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 2.31 Supply and install fabricated 1.5mm thick aluminum Framed Doors and Windows including accessories**

The quantity to be paid for shall be the actual lot of fabricated 1.5mm thick aluminum Framed Doors and Windows including accessories, 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 2.32 Supply and install fabricated Marine Plywood Finish Flush Doors and PVC Louver Door including door jambs, hinges, locksets, and other accessories**

The quantity to be paid for shall be the actual lot of fabricated Marine Plywood Finish Flush Doors and PVC Louver Door including door jambs, hinges, locksets, and other accessories, 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 2.33 Supply and install fabricated powder coated aluminum louver Door and windows including accessories**

The quantity to be paid for shall be the actual lot of fabricated powder coated aluminum louver Door and windows including accessories, 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 2.34 Supply, fabricate and install Phenolic anti-bacterial water proof Toilet partition 12mm thick, including stainless hinges, lock indicators, bottom support door knobs and coat hooks**

The quantity to be paid for shall be the actual lot of Phenolic anti-bacterial water proof Toilet partition 12mm thick, including stainless hinges, lock indicators, bottom support door knobs and coat hooks, 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 2.35 Supply and install Toilet Fixtures and accessories**

The quantity to be paid for shall be the actual lot of toilet fixtures and accessories, 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 2.36 Supply and install water line pipes and fittings including water tank, pressure tank, booster pump, transfer pump, and other accessories.**

The quantity to be paid for shall be the actual lot of water line pipes and fittings including water tank, pressure tank, booster pump, transfer pump, and other accessories, 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 2.37 Supply and install sewerage pipes and fittings including accessories**

The quantity to be paid for shall be the actual lot of sewerage pipes and fittings including accessories, 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 2.38 Supply and install drainage pipes and fittings Including accessories**

The quantity to be paid for shall be the actual lot of drainage pipes and fittings including accessories, 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 2.39 Construct septic vault including fittings and accessories**

The quantity to be paid for shall be the actual number of septic vault including fittings and accessories, 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 2.40 Construct catch basin including accessories**

The quantity to be paid for shall be the actual number of catch basin including accessories, 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 2.41 Construct lateral drainage including trench grate and accessories**

The quantity to be paid for shall be the actual length in linear meter of lateral drainage including trench grate and accessories, constructed in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation 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 2.42 Construct catch drain manhole including trench grate and accessories**

The quantity to be paid for shall be the actual number of catch drain manhole including trench grate and accessories, 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 2.43 Construct portland cement concrete pavement (300mm thick) including reinforcements.**

The quantity to be paid for shall be the actual area in square meter of portland cement concrete pavement (300mm thick) including reinforcements, constructed in accordance with the plans and specifications, measured from the tip of piles to cut-off elevation 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 2.44 Supply, deliver and install wires and cables of various sizes**

The quantity to be paid for shall be the actual lot of wires and cables of various sizes 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 2.45 Supply, deliver and install conduit pipe including fittings of various sizes**

The quantity to be paid for shall be the actual lot of conduit pipe including fittings of various sizes 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 2.46 Supply, deliver and install wiring devices**

The quantity to be paid for shall be the actual lot of wiring devices 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 2.47 Supply, deliver and install protective devices**

The quantity to be paid for shall be the actual lot of protective devices 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 2.48 Supply, deliver and install lighting fixtures**

The quantity to be paid for shall be the actual lot of lighting fixtures 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 2.49 Supply, deliver and install lightning protection and accessories**

The quantity to be paid for shall be the actual lot of lightning protection and 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 2.50 Supply, deliver and install auxiliary system:**

- a) **Community Antenna Television (CATV)**
- b) **Background Music / Paging Alarm (BGM/PA)**
- c) **Fire Detection Alarm System (FDAS)**
- d) **Telephone System**

The quantity to be paid for shall be the actual lot of auxiliary system 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 2.51 Supply, deliver and install air conditioning unit and other appurtenances**

The quantity to be paid for shall be the actual lot of air conditioning unit and other appurtenances 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 2.52 Construct Reinforced Concrete for Duct bank, handhole, pedestal post and solar lamp post foundation**

The quantity to be paid for shall be the actual lot of reinforced concrete for Duct bank, handhole, pedestal post and solar lamp post foundation, 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 2.53 Supply and deliver office furniture and gang chairs**

The quantity to be paid for shall be the actual lot of office furniture and gang chairs to be supplied and delivered 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 2.54 Supply, deliver and install PPA Logo for PTB and gate including accessories**

The quantity to be paid for shall be the actual lot of PPA Logo for PTB and gate including 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 2.55 Supply, deliver and install distribution transformer including accessories and other incidental expenses**

The quantity to be paid for shall be the actual lot of distribution transformer including accessories and other incidental expenses 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 2.56 Supply, deliver and install 10.0m ht. single bar solar lamp post in hot dip galvanized with H150W Integrated Solar Street light including accessories**

The quantity to be paid for shall be the actual set of 10.0m ht. single bar solar lamp post in hot dip galvanized with H150W Integrated Solar Street light including 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 2.57 Construct Guardhouse and Gate including other appurtenances**

The quantity to be paid for shall be the actual lot of Guardhouse and Gate including other appurtenances, 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 2.58 Construct Security fence including accessories**

The quantity to be paid for shall be the actual length in linear meter of Security fence including accessories, 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 2.59 Supply, deliver and install 29.43kwp Grid-Tied Solar Power Project including net metering and other accessories**

The quantity to be paid for shall be the actual lot of 29.43kwp Grid-Tied Solar Power Project including net metering 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.

**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	Concrete cutter, owned
2	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	Crawler Crane (30T, minimum), owned/leased
1	unit/s	Dump Truck (8 cu.m., minimum), owned
2	unit/s	Bar Bender (electric, 25mm dia min.), owned
2	unit/s	Bar Cutter (electric, 25mm dia min.), owned
1	unit/s	Jackhammer, owned
2	unit/s	Oxy/Acetylene cutting outfit, owned
1	unit/s	Payloader (80 hp, minimum), owned/leased
2	unit/s	Plate Compactor (5 hp, minimum), owned
1	unit/s	Road Grader (125 hp, minimum), owned/leased
1	unit/s	Road Roller (12.05T, vibratory, minimum), owned/leased
2	unit/s	Transit Mixer (5-6 cu.m. cap., minimum), owned/leased
1	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 (5T, minimum), owned
1	unit/s	Concrete breaker (Backhoe Attachment), owned/leased

## CONSTRUCTION SAFETY AND HEALTH REQUIREMENT

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

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

The Contractor shall provide the following minimum requirements:

### LABOR

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

### EQUIPMENT / MATERIALS

#### Personnel Protective Equipment

39	pcs.	Hard Hats
39	pairs	Gloves (rubberized)
39	pcs.	Safety Glasses/Goggles (clear)
78	pcs.	Long sleeve T-shirt
4	pc.	Aprons
39	pairs	Safety Shoes

#### Safety Devices

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

Medical and First Aid System	-	Ten (10) mos.
Temporary shelter for workers	-	1 lot

### NOTE:

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

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

<i>Materials/Items of Work</i>	<i>Required Tests</i>	<i>Minimum Incremental Frequency of Tests</i>
<b>I. Construction of Pier/Wharf, Platform and Ramp</b>		
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

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Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
4 Coarse Aggregates	Same Test as for SC (C)	Same frequency as SC (C)
5 Fine Aggregates	Same Test as for SC (B)	Same frequency as SC (B)
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) <ul style="list-style-type: none"> <li>- Under 14" (355.60mm) Outside Diameter</li> <li>- 14" to 36" (355.6 to 914mm) Outside Dia</li> <li>- Over 36" (914mm) Outside Diameter</li> </ul> Mechanical/Tensile	2 from 200 pipe or fraction thereof 2 from 100 pipe or fraction thereof 2 from 3000ft (914m) or fraction thereof One (1) tension test shall be made on one length or fraction thereof of each size, or one piece of skelp representing each lot of 200 lengths or fraction thereof of each size
2 Polyurethane Coating	Mill Certificate and Quality Test	One per fabrication
3 Concrete	Same test as for SC (F)	Same frequency as SC (F)
4 Fine Aggregate	Same test as for SC (B)	Same frequency as SC (B)
5 Coarse Aggregate	Same test as for SC (C)	Same frequency as SC (C)
6 Steel Bars	Same Test as SC (E)	Same frequency as SC (E)
7 Water	Same Test as SC (D)	Same frequency as SC (D)
Rubber Dock Fenders (RDF)	Physical Test Performance Test for Energy Absorption and Reaction Force	All units All units
Accessories Washer and Fixing Bolt, Anchor Bolt	Physical Test Quality Test for Chemical Composition and Mechanical Properties	All units One per fabrication

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

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

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

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

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

*TRC*

PPA MEMORANDUM CIRCULAR  
No. 02  
Series of 2016  
Attachment  
Page 8 of 10

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

PPA MEMORANDUM CIRCULAR  
 No. 02  
 Series of 2018  
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Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
Protective Devices	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per shipment
Telephone System	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item
CCTV System	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item
CATV System	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item
Background Music and Paging System	Inspection and Evaluation Report from the Engineer, Testing and Commissioning	One per item
Air Conditioning Units & Ventilation	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item
Conduit Pipes	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item
Lighting Fixtures	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item
<b>PLUMBING WORKS</b>		
Pipes	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item

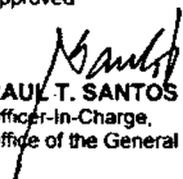
PPA MEMORANDUM CIRCULAR  
 No. 02  
 Series of 2016  
 Attachment

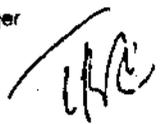
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Materials/Items of Work	Required Tests	Minimum Incremental Frequency of Tests
Fixtures	Inspection and Evaluation Report from the Engineer  Testing and Commissioning	One per item
Pipe Culverts	Compression Strength  Inspection and Evaluation Report from the Engineer	For every size not more than 25 pipes cast in the field
<b>IV Miscellaneous Materials</b> 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]*

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### BID FORM

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**NOTE:**

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

This Statement shall be supported by:

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

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

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

\_\_\_\_\_  
Date

Revised: September 2021

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

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

**NOTE :**

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

- A. The bidder must have an experience of having completed a SLCC that is similar to the contract to be bid equivalent to at least fifty percent (50%) of the ABC, adjusted if necessary, by the Bidder to current prices using the PSA consumer price indices. A contract is considered to be "similar" to the contract to be bid if it has the same Major Categories of Work as stated in the Bid Data Sheet (BDS).
- B. This Statement shall be supported by:
  - a. Notice of Award, Notice to Proceed and Contract.
  - b. Project Owner's Certificate of Final Acceptance issued by the owner and/ or Constructors Performance Evaluation System (CPES) Final Rating, which must be at least Satisfactory. The said Certificate of Acceptance shall contain the following: 1) Name of project owner that issued the certificate, 2) Name of Contractor/ Constructor, 3) Name of Contract, and 4) Contract Duration.
  - c. Recapitulation or Final Bill of Quantities.

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

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

\_\_\_\_\_  
Date

Revised: September 2021

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

Major Categories of Work 1]	Unit of Measure 1]	Quantity 1]	SLCC similar to the contract to be bid 2]	Other completed contracts similar to the contract to be bid 2]			Unit of Measure 2]	Quantity 2]
			Name of the contract	Name of the contract	Name of the contract	Name of the contract		
1. Reinforced Concrete Works	cu.m.	89						
2. Construction of Office building	sq.m.	197						

**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 " _ "
Project Architect					PRC License Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Materials Engineer I					PRC License (CE Preferred) Submit Valid and Renewed DPWH Certificate of Accreditation Submit Accreditation Identification Card as Materials Engineer Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Construction Safety and Health Officer					Certificate of Safety and Health Construction Related Course issued by DOLE Accredited Trainings Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Foreman					Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "
Other Position(s)					Complete Qualification and Experience Data Certificate of Commitment	Annex " _ "

**NOTE:** 1] As stated in the Bid Data Sheet

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

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

Project Manager - Five (5) years  
Project Engineer - Three (3) years  
Project Architect - Three (3) years  
Foreman - Five (5) years

Materials Engineer – One (1) year  
Materials Engineer I – for projects costing up to 100M  
Materials Engineer II – for projects costing more than 100M  
Construction Safety and Health Officer – One (1) year

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

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

\_\_\_\_\_  
Date

Revised: September 2021

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

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

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

**NOTE:**

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

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

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

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

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

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

\_\_\_\_\_  
Date

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

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

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

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

---

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

**[Jurat]**

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

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

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

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

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

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

**[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]*

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

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

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

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

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

**[Jurat]**

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

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

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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].

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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. PASSENGER TERMINAL BUILDING, GUARDHOUSE, FENCE AND GATE

1. Removal, disposal, and excavation/backfilling works
2. Construction of 1-storey Passenger Terminal Building, complete with architectural finishes, electro/mechanical, water/sewerage system, painting, etc. (439.44 sq.m., 50 pax)
3. Supply, delivery & installation of distribution Transformer & accessories
4. Port lighting system
5. Construction of security fence
6. Supply & installation of solar panel & accessories

#### NOTES:

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

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

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

## MANPOWER SCHEDULE

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

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

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

<b>MANPOWER (Minimum)</b>	<b>CONTRACT DURATION ( _____ Calendar Days)</b>											
	<b>M O N T H L Y</b>											
	1	2	3	4	5	6	7	8	9	10	11	12
Project Manager												
Project Engineer												
Project Architect												
Materials Engineer I												
Construction Safety and Health Officer												
Foreman												
<b>Specify other applicable positions, ie.:</b>												
- Carpenter												
- Steelman												
- Mason												
- Electrician												
- Rigger												
- Others												

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



## CASHFLOW BY QUARTER AND PAYMENT SCHEDULE

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

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

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

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

**NOTES**

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

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

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

for:

**Philippine Ports Authority**

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

for:

**Contractor**

#### **Acknowledgment**

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