



**TERMS OF REFERENCE**  
**FOR THE DESIGN AND BUILD SCHEME FOR THE ESTABLISHMENT OF PLANETARIUM  
IN MINDANAO**

- I. **PROJECT TITLE:** Design and Build Scheme for the Establishment of Planetarium in Mindanao including Provision of Water Supply System, Commercial Electric Power Supply, Electrical Service Entrance Post, Airconditioning System ( Floor Mount and Window Type) and landscaping of the area
- II. **PROJECT LOCATION:** Molugan, El Salvador City, Misamis Oriental
- III. **PROJECT OWNER/ PROJECT ENTITY:** PAGASA/DOST
- IV. **PROJECT DESCRIPTION:**

PAGASA will establish the Planetarium in Molugan, El Salvador City, Misamis Oriental (in Mindanao) as part of its modernization program. PAGASA operates only one (1) planetarium that can be located in Quezon City. Reaching out to other parts of the country like Cebu and El Salvador, the young students will have the chance to experience the night time sky without the interference of bad weather. The proposed planetarium will house the digital planetarium projector and small telescope that will be of great help to the youth and the general public to be aware of the significance of astronomy in our daily lives. Many children in the cities grow up unaware of most aspects of the sky, because light pollution washes out the stars and planets. Very few children specially those who live in rural areas have seen the Milky Way, the faint banner of light that is the extension of the Galaxy. With the establishment of planetarium outside Metro Manila, it can motivate the students with its interesting, stimulating learning situation. With this development in science and technology services, the planetarium activity can also be integrated in the curriculum of K-12 as a supplemental program to better understand science in general and astronomy in particular.

The design and build scheme is being adopted to fast track the project's implementation being part of the PAGASA Modernization Program. The project includes not only the construction of the building but also the provision of water supply system, commercial electric power supply, electrical service entrance post, air-conditioning system (floor mount and window Type) and the installation of planetarium chairs inside the planetarium chamber (lecture room) and the landscaping of the grounds including the backfilling and riprapping.

- I. **CONCEPTUAL DESIGN:**

The Mindanao Planetarium will mainly involve the construction of Planetarium buildings with approximately 755 sq.m. and the landscaping of the area. The major parts of the structure shall be the planetarium chamber with dome ceiling which includes the installation of the chairs (same

as the chairs in movie theater), a roof deck that will serve as astronomical observation deck, gallery hall for astronomy theme display, the main office space, conference room, comfort rooms, visitor's lounge and staff quarters. The structure should be GAD compliant.

The planetarium dome shall be the main feature of the planetarium chamber that will serve as the projection screen. The diameter of the dome shall be 10.0 meters as shown in the attached floor plan to allow full digital projection. The Planetarium chamber will be designed to 100 seating capacity and the provision for the installation of the digital planetarium projector and its accessories. In addition, the planetarium chamber shall be sound proof and the flooring is carpeted.

For reference purposes, a floor plan is attached to serve as a guide in the preparation of the plans and designs for designer/contractor.

## **II. PERFORMANCE SPECIFICATIONS AND PARAMETERS:**

### **a) Design Preparation**

The designer/ contractor shall prepare all the plans and designs and estimates necessary for the construction of the Planetarium in Cebu and El Salvador based on the conceptual plans and designs provided by PAGASA. The plans and design shall compose of complete engineering, architectural and structural plans and design of footing, foundation, columns and beams, and other parts of the structures such as stairs, doors and windows. **The plans and designs shall conform to the latest building code NSCP 2010 Edition.** The plans and designs shall be required in Electronic format, preferably using AutoCAD Software with its corresponding hard prints. The stability of the structure shall be mainly considered in the preparation of designs. **Before the implementation of the project, these engineering plans, design, drawings, and others shall first be subjected to review and approval of PAGASA.**

### **b) Detailed Engineering Requirements**

Upon award of the design and build contract, the winning bidder shall be responsible for the preparation and submission of all necessary detailed engineering investigations, surveys and designs in accordance with provision of Annex "A" of the IRR-A of R.A. 9184, (with the exception of the bid documents and the ABC) as follows:

- a) Survey
- b) Site Investigation
- c) Soils and Foundation Investigation (Soil Boring Test results to be provided by PAGASA)
- d) Construction Materials Investigation
- e) Preparation of Design Plans
- f) Preparation of Technical Specifications
- g) Preparation of Quantity and Cost Estimates
- h) Preparation of Program Work
- i) Preparation of Proposed Construction Schedule (and estimated Cash Flow for projects with Schedule over 6 (six) months)
- j) Preparation of Utility Relocation Plan
- k) Preparation and submission of Design Report
- l) Environmental Impact Statement for critical project as defined by the Department of Environment and natural Resources (DENR)

- m) Preparation of minimum requirements for a Construction Safety and Health Program for the Project being considered

Considering that this is a Design and Build project, bidders are required to submit detailed engineering designs as part of their bids.

For reference and as applicable to the project, the PAGASA will secure the following:

1. Certificate of Non-Coverage (CNC) from the DENR, in lieu of the Environmental Compliance Certificate (ECC);
2. Geotechnical Investigation Report

### **c) Construction and Contract Implementation**

The designer/contractor shall be responsible for securing all the necessary permits (Building Permit, Electrical, Sanitary, Commercial Electric Power connection). Securing the Building Permit shall be necessary before commencement of any works and shall form part of the contract implementation, at the expense of the winning contractor.

The designer/contractor shall have charge and care of the work. He shall take every precaution against damage or injury caused by the action of the elements or from any other cause whether arising from the execution or from the non-execution of work.

The design and build contractor shall be solely responsible for the integrity of the detailed engineering design and the performance of the structure irrespective of the approval/confirmation by the procuring entity.

The contractor/designer shall rebuild, repair, restore and make good all damages or injuries to any portion of the works occasioned by any of the above causes and bear related expenses, except due to Force Majeure and without fault or negligence of the contractor.

Rain, windstorm, or other natural phenomena of normal intensity, based on the official weather reports for the particular season of the year in which the works are being implemented shall not be construed as Force Majeure or unforeseeable causes beyond the control of the contractor.

### **Preliminary Survey and Mapping**

The project site is located at Zone-10 Molugan, El Salvador City, Misamis Oriental is situated inside the Mindanao PAGASA Regional Services Division Office premises. The total land area where the Proposed Planetarium will be situated is 1,984 sq.m.

### **Geotechnical Investigations**

The soil-boring test was already conducted at Molugan, El Salvador by JICA. Results will be provided to prospective bidders.

### **Utility Locations**

The proposed site has an existing commercial electric power connections, however, the winning bidder/contractor shall apply for a separate commercial power supply connection with a separate 37.5 KVA power transformer to existing electric cooperative in the locality. All expenses related

to the supply, installation, commissioning and testing including accessories of the commercial electric power supply shall be at the expense of the winning contractor. A basic load schedule/riser electrical diagram shall also be provided to whoever is the winning bidder/contractor.

**Approved Budget for the Contract**

The Approved Budget for the Contract (ABC) is **Thirty Three Million Pesos (Php 33,000,000.00)**.

**Proposed Design and Construction Schedule**

The implementation and completion of the project shall not be more than 240 calendar days from the receipt by the winning contractor of the Notice to Proceed.

However, no works shall commence unless the contractor has submitted all the required documentary requirements and the PAGASA has given written approval. Work execution shall be in accordance with reviewed and approved documents.

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