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DESIGN AND BUILD

PROJECT NAME: REHABILITATION OF WATER SYSTEM AT MAIN CAMPUS

LOCATION: BPSU, MAIN CAMPUS, CITY OF BALANGA, BATAAN

I. BACKGROUND

The proposed Design and Construction of Rehabilitation of Water System at Main campus is intended for the new source of potable water that will ensure the needs of Academic Buildings and Offices of the campus and Drilling of new deep well water system; putting up of new pipes and installation of a bigger water tank (25,000 gal) with 10 HP Submersible pump.

Design and Build (DAB) scheme is to be utilized in the installation of the Rehabilitation of Water System at Main Campus with the Architectural Design being given. The entire Engineering Design of Plumbing, are included in the bidding, and as such, the DAB scheme has the following givens for which the prospective contractor shall work on:

II. PROJECT DESCRIPTION

Project Name: **Rehabilitation of Water System at Main Campus**

Location: **BPSU, Main Campus, City of Balanga, Bataan**

ABC: **Php. 12,000,000.00**

III. OBJECTIVES:

1. To provide a background information regarding the preparation and submission of the proposed project to Designer – Builder.



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2. To provide a background information regarding the proposed project which should be handled in the shortest possible time, at an acceptable quality and performance to the Designer – Builder.
3. To outline the “Work” of the Designer – Builder that has to be performed under the terms of its contract.

IV. GENERAL SCOPE OF WORKS:

- A. The project covers the REHABILITATION OF WATER SYSTEM AT MAIN CAMPUS Under the DESIGN and BUILD SCHEME.
- B. With respect to the construction of the buildings and other structures, the design and specifications shall conform to the standards set by:
 1. Plumbing Code of the Philippines
 2. Environmental Impact Statement as defined by the DENR other Engineering Standards.
- C. A complete set of Plumbing drawings appropriate scales indicating all necessary details in order that the structures can be set out and constructed in accordance with guidelines and standards of the Sanitary Code and Plumbing Code of the Philippines shall be furnished by the bidder.
- D. The bidder shall be responsible to deliver the expected outputs within the bounds of the approved project design and construction schedule upon receipt of Notice to Proceed.
- E. The bidder shall include in his proposal the cost of the REHABILITATION OF WATER SYSTEM AT MAIN CAMPUS including the Detailed Plumbing Designs and other related research, Surveys, and technical studies and required, to come out with the design



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- F. The Lowest Calculated Responsive Bidder shall enter into a contract with the procuring entity that shall be in the nature of a Design and Build Scheme of the project.
- G. The winning bidder shall then proceed with the construction of the project under the terms and conditions set forth herein.
- H. Upon Project Completion and Final Acceptance in accordance with the terms and conditions set forth herein, the Contractor shall turnover the completed project to the procuring entity for proper disposition.

I. DETAILED SCOPE OF WORKS

A. PRE-PLANNING PHASE

Preliminary Investigations. These shall include, among others, information on hydrologic, hydraulic, seismic, and environmental conditions that shall be used to define project design criteria, to set the basis for any changed conditions and establish preliminary project cost estimates.

The bidder, by submitting his bid, represents that:

1. He has thoroughly read/examined carefully understands fully all the bid documents and his bid will be in accordance therewith.
2. His bid is based upon the conditions and requirements of the bid documents without exception.
3. He has visited and inspected the Site of Works and its surroundings and satisfied himself as to all matters pertaining to the project, including the location and the nature of the work; climatic conditions; the nature and condition of the terrain: geological conditions at the site; transportation and communication facilities; the requirement and the availability of materials, labor, water, electric power and roads; the locations and extent of aggregate sources, and other factors that may affect the cost, duration and execution of the work; that he has determined the general characteristics of the project and the conditions indicated above.
4. He is aware that the construction period of the project shall be **240 calendar days** reckoned seven (7) days from the date of the NOTICE TO PROCEED



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B. PLANNING /ENGINEERING DESIGN DEVELOPMENT PHASE

1. Surveys and Site Investigation

- a. Preliminary Survey and Mapping. These shall determine boundaries and provide stationing along control lines to establish feature and design criteria location, and identify existing and future limits and construction easements associated with the Rehabilitation of Water system at Main Campus.
- b. The bidder is expected to conduct actual site survey of the project area to identify preliminary boundaries of the proposed buildings. In the process, he shall be able to familiarize himself with site and nearby occupancy.
- c. In the conduct of structural surveys, the following parameters need to be considered;
 - a. Man-made structures
 - b. Utility Locations. The procuring entity shall provide information on existing utilities in and around the project's area.

The bidders shall identify/locate the existing utilities at the site, namely:

- a. Water Supply

SUBMITTAL/S: Three (3) copies – one (1) original white print, and two (2) duplicate of existing utilities and the relocation plan shall be reflected in a utility map on A3 paper size. The utility maps shall indicate which lines will be affected by the new installation and the extent that they will have to be relocated.

3. Proposed Site Development Plan

- a. The structure will be positioned in accordance with the site development plan of Rehabilitation of Water System of Main Campus.
- b. The site development plan shall take into consideration but shall not be limited to the following planning parameters:



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SUBMITTAL/S; Site development plan in four (4) copies – one (1) original white print, and three (3) copy drawn at 20" by 30" paper size signed and sealed by a master plumber.

VI. DESIGN CONSIDERATIONS

A. Engineering Drawings

1. General

- a. The detailed design shall conform to the general standards by the Plumbing Code of the Philippines and other pertinent laws of Rehabilitation of Water System design and construction.
- b. All design assumptions shall be based on the results of the required technical studies, detailed analysis, and design computations.
- c. The technical drawings and specifications shall clearly indicate all the details required to ascertain the care and thoroughness devoted in the preparation of the drawings.

2. Water Supply and Distribution System

- a. The bidders shall carry out a detailed design for the water supply system for the building(s). The design should be on the basis of the results of the hydrological study and, the drainage survey taking into consideration the general and particular problems such as the source and the volume of water supply, water consumption, piping network, in accordance with the applicable laws, rules and regulations governing health safety and sanitation.
- b. Water supply source will be sourced from the new source of the deep well which included in this bidding.
- c. Water outlets should be provided on convenient locations for the cleaning/flushing.



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3. Water Supply and Distribution System

A. Design criteria

1. Design year October 2019
2. No. of buildings
3. No. of occupancy (student and personnel)
4. Population
5. Capacity per day
6. Design of elevated steel tank (computation for 25,000 gal capacity)
7. Shape of reservoir
 - a. Cylinder body and parabolic bottom
8. Height
 - a. 9m from FGL to the bottom of water tank
 - b. Size of casing: 6" diameter

B. Well Drilling

- Well log sheet c/o contractor. Specification of all material used (e.g. MS Plate, pipes, I-Beam, etc.)
- No. of pipes

C. Pump House

1. Area: 3.00m x 4.00m

D. Cistern Tank Area : (w) 3.00m x (l) 4.00m x (h) 2.40m

E. Fire Pump: 60HP– UL-FM APPROVED, 300-400 GPM, 200 psi, 3 PHASE, Centrifugal, end suction for fire pump service provide certified pump performance curve

F. Piping of Fire Protection System (please refer to Mechanical Layout)

G. Jockey Pump: 7.5 HP – UL-FM APPROVED 20 GPM, 200 psi, 3 PHASE, Centrifugal, for fire pump service provide certified pump performance curve

H. Design of Distribution Main

- Pipe: 4" or 100mm diameter

I. Complete set of detailed structural drawings and structural analysis for the TANK FOUNDATIONS AND SUPPORT SYSTEMS signed and sealed by a **licensed Structural Engineer**

J. **SUBMITTAL/S:** Final Output for Bldg. Permit Requirements;

- a. Plumbing and Complete Set Of Plans for tank in ten (10) copies – one (1) original white print, and nine(9) duplicate drawn in 20x30 white paper in duly signed and

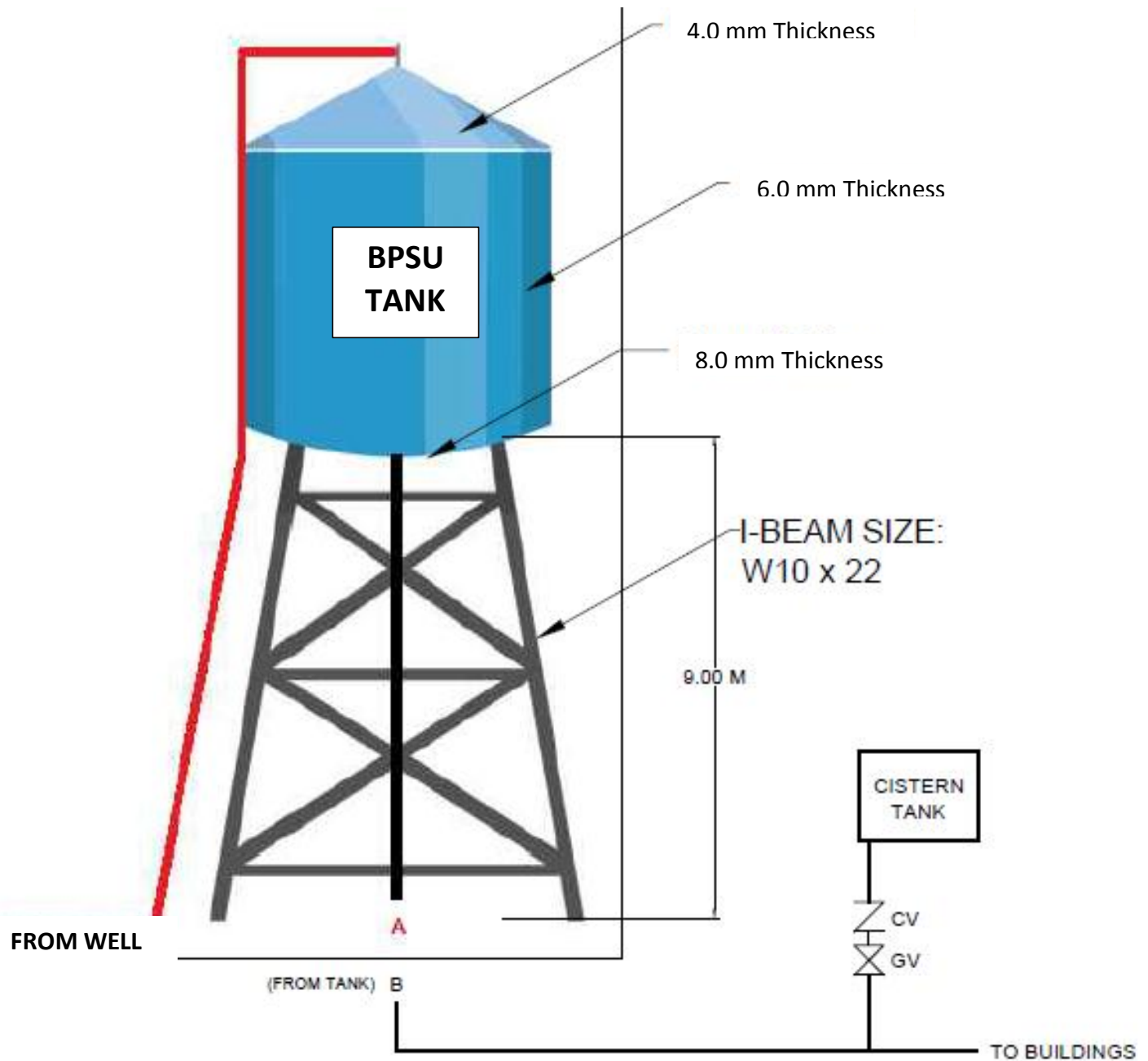


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sealed by a licensed Mater Plumber and Structural Engineer.

K. Minimum Design Considerations:





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VII. Project Cost Estimates

(INCLUDES THE QUANTITIES AND COST CALCULATIONS)

The bidders shall submit the quantities and cost of the different types of works to be carried out in accordance with DPWH Department Order No. 72 series of 2012 dated October 5, 2012. In particular, the quantities and cost of each work item shall be calculated and a bill of quantities shall be prepared. The bidders shall draw up a unit price analysis for each of the main pay work items. The unit price of each of the main work pay items shall include:

The unit price of each of the main work pay items shall include:

- A.** Cost of the Preliminary and Detailed Architectural and Engineering Design – Should be in accordance with NEDA guidelines.
- B.** Construction Cost of the Project;
 - 1. The Direct Cost are the following:
 - a. Cost of Materials to be used in doing the work item called for, which shall include the following:
 - a.1. Cost of source, including processing, crushing, stockpiling, loading, local taxes, construction and/or maintenance of haul roads, etc.
 - a.2. Expenses for hauling to project site.
 - a.3. Handling expenses
 - a.4. Storage
 - a.5. Allowance for waste and/or losses, not to exceed 5% of materials requirement.
 - b. Cost of Labor:
 - b.1. Salaries and wages as authorized by the Department of Labor and Employment
 - b.2. Fringe benefits, such as vacation and sick leaves, benefits under the workmen's Compensation Act GSIS and SSS contribution, allowances, 13 month pay, bonuses etc.
 - 2. The Indirect Cost shall consist of the following:



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- a. Overhead Expenses - ranges from 5 - 8% of the EDC, which includes the following:
 - a.1. Engineering and Administrative Supervision.
 - a.2. Transportation allowances.
 - a.3. Office Expenses, e.g., for office equipment and supplies, power and water consumption, communication and maintenance.
 - a.4. Premium on Contractor's All Risk Insurance (CARI).
 - a.5. Financing Cost.
 - Premium on Bid Security
 - Premium on Performance Security
 - Premium on Surety for Advance Payment
 - Premium on Warranty Bond (one year)
- b. Contingencies - ranges from 0.5 - 3% of the EDC. These include expenses for meetings, coordination with other stakeholders, billboards (excluding Project Billboard which is a pay item under the General requirements), stages during ground breaking & inauguration ceremonies and other unforeseen events
- c. Miscellaneous Expenses - ranges from 0.5 - 1% of the EDC. These include laboratory tests for quality control and plan preparation.
- d. Contractor's Profit Margin – shall be 8% of EDC: for projects above Php5Million and 10% for projects Php5Million and below
- e. VAT Component - shall be 12% of the sum of the EDC, OCM and Profit.
The following items shall not be subjected to OCM and Profit mark-up:
 - e.1. Mobilization and demobilization
 - e.2. Provision of Service Vehicle



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VIII. CONSTRUCTION PHASE - CONSIDERATIONS

A. Permits and Clearance

The bidders shall defray and all expenses necessary and incidental for the Rehabilitation of Water System at Main Campus to be able to secure the Environmental Clearance Certificate (ECC), including the corresponding Tree Cutting Permit (if any tree needs to be cut from the concerned government agencies, if necessary). The contractor shall, upon authorization of the Municipal Government, make representations with the government agencies concerned to expedite the release of the same. Obtain and pay the corresponding fees for all necessary approvals, permits and certificates such as the following:

1. Plumbing Permit
2. Certificate of Completion
3. All other permits as may be required

B. Temporary Structures & Facilities

The contractor shall provide and maintain the following:

1. Temporary office and/or quarters for the contractor's project team personnel with water, light, telephone and toilet facilities.
2. Temporary bunkhouse/quarters for the contractor's workforce complete with toilet and bath facilities.

C. Mobilization

The contractor shall mobilize all the required project team personnel, equipment, tools and manpower with the required skills and insufficient number as may be necessary for his efficient undertaking of the project.

D. Construction Proper

The contractor shall prosecute all the works under the contract in strict accord with standard engineering methodology and procedures and shall be responsible for maintaining cleanliness and orderliness in the project area throughout the duration of the contract.



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E. Electrification

The contractor shall pay to the local power utility the cost of providing the additional electrical distribution facilities for the project.

F. Material Testing

All material testing shall be conducted by the accredited testing laboratories.

G. As-built plans

The contractor shall cause the preparation and submission of as-built plans duly signed and sealed by all concerned parties involved in the construction in the same sheet size and scale as the original drawings in two (2) white print copy and one (1) reproducible copy.

H. Other considerations:

1. Project Staffing:
 - a. Design Group
 - a.1. Licensed Master Plumber
 - a.2. Licensed Structural Engineer
 - b. Construction Group
 - b.1. Licensed Master Plumber
 - b.2. Foreman
 - b.3. Certified Welder
 - b.4. Skilled
 - b.5. Labor

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