BATAAN PENINSULA STATE UNIVERSITY

TERMS OF REFERENCE

DESIGN AND BUILD

PROJECT NAME: COMPLETION OF LOOP (CONCRETING OF 2KM ROAD NETWORK) WITH STREET LIGHTING AT ABUCAY CAMPUS

LOCATION: BPSU, ABUCAY CAMPUS, ABUCAY BATAAN

I. BACKGROUND

The Completion of Loop (Concreting of 2km Road Network) with street Lighting at Abucay Campus which will continue the previous phase of Two way Road Network with 6.00m wide with concrete curb and gutter where materials and construction requirements shall conform to DPWH Standard Specification.

II. PROJECT DESCRIPTION

Project Name:	**COMPLETION OF LOOP (CONCRETING OF 2KM ROAD NETWORK) WITH STREET LIGHTING AT ABUCAY CAMPUS**
Location:	**BPSU Abucay Campus, Abucay Bataan**
ABC:	**Php. 20,000,000.00**

III. OBJECTIVES:

1. To provide a background information regarding the preparation and submission of the proposed project to Designer – Builder.
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 **Completion of Loop (Concreting of 2km Road Network) with Street Lighting at abucay campus**. Under the DESIGN and BUILD SCHEME.

TERMS OF REFERENCE

DIVISION	SCOPE	SPECIFICATION
General Requirements	**Scope of Work**	The work covered under this Contract consists of the furnishing all materials, labor, equipment, transportation, incidentals, facilities, and superintendence necessary to complete the project. The Contractor is expected and **required** to attend the important phases of the bidding process of the said project. All concerns and questions shall be discussed on the Pre-Bid Phase.
	Plans and Specification	The Contractor shall be responsible for carefully examining, comparing and verifying the data furnished by the Plans and specifications, the Contractor shall submit the matter to the Architect or his authorized representative for the proper explanation or necessary correction, before any adjustment shall be made. Any adjustment by the Contractor without such determination shall be at his risk and expense. Ommited or wrongly described details of work, which are manifestly necessary to carry out the true intent of the drawings and specifications, shall be performed as if fully and correctly set forth and described in the drawings and specifications. The procuring entity may, from time to time, make changes in the specifications and construction drawings. However, if the cost to the Contractor shall be materially increased by such change, the Procuring Entity shall pay the Contractor for the reasonable cost in accordance with the changes.
	Laws to be Observed	The contractor shall comply with the laws, City or Municipal Ordinances and all government specifications and regulations in so far as they are binding upon or affecting the portion the work hereto. The Contractor or those engaged thereon shall obtain all necessary licenses and permits and pay all taxes or fees, which may due to the local and/or National Government in connection with the prosecution of the work. He shall also be responsible for all damages to persons or property that may occur.

Materials **A. Samples and Information on Materials**	Unless otherwise specified, all materials shall be new and free from defects and imperfection. The quality of materials shall be of the best grade of their respective kinds for the purpose. The work shall be performed in the best and acceptable manner in strict accordance with the requirements of the Plans and Specifications. Preference will be given to articles or materials that are locally manufactured, conditions of quality and price being equal. When called for by the Architect, the Contractor shall furnish, for approval, full information and satisfactory evidence as to the kind and quality of materials or articles he will incorporate in the work. The contractor shall furnish, for Architect's approval, all samples when so directed. The work shall be in accordance with approved samples. Materials and articles installed or used without such approval shall be at the risk of subsequent rejection. Any failure on the part of the Contractor to conform use materials that are not specified herein shall be under subsequent rejection, unless subject for approval. Any alteration or revision of material usage without approval from the Architect shall make the Contractor responsible and liable in terms of guarantee, workmanship and defects.
Workmanship	Workmanship shall be in accordance with the best standard practices and all operations required under any and all parts of the Specification shall be undertaken in a neat, workman-like manner. Only skilled personnel with sufficient experience in similar operations shall be allowed to undertake the same. Any alteration or revision on the execution of drawings without approval from the Architect shall be under subsequent rejection and shall make the Contractor responsible and liable for any workmanship and execution defects. Defective workmanship shall be remedied by the Contractor, at his expense. He shall not be entitled to any payment hereunder until defective workmanship has been remedied.

A. Temporary Facilities	The Contractor shall provide and maintain adequate weather-tight facilities with water, light, and toilet facilities. He shall keep such places clean and free from flies. He shall remove all connections and appliances connected there with prior to the completion of the Contract and leave the premises perfectly clean. The Contractor shall furnish all temporary water, lights and power and shall pay all expenses in connection therewith. Furthermore, the Contractor shall provide and pay for all water expenses for building purposes that are required by all trades.
B. Protection of Work and Procuring Entity's Property	The Contractor shall put up safety measures and continuously maintain adequate protection of all his work from damage and shall protect the Procuring Entity's property, as well as all materials furnished and delivered to him by the Entity. He shall make good any such damage, injury or loss, expect such as may be caused by agents or employees of the Procuring Entity, or due to causes considered as an Act of God.
Supervision and Inspection	
A. Authorized Representative	Whenever the Contractor is not at the site, orders maybe given by the Procuring Entity to his authorized representative and shall be accepted and complied to by the Site Engineer or foreman of the Contractor.
B. Inspection of Work	The Architect / BPSU TWG Inspectorate Team shall, at all times have access to the work whenever it is in preparation or progress and the Contractor shall provide facilities for such access for inspection. The manner of work and all materials and equipment used therein shall be subject to inspection, tests, and approval of the Architect / TWG Inspectorate Team.
C. Constant Supervision	The Contractor shall ensure that the project will have constant supervision by a competent superintendent, who shall be present where construction is being carried on at all times during the working hours.
D. Disputes	The Technical Working Group for Infrastructure shall, within a reasonable time, make decision on all claims of the Procuring Entity or Contractor and on all matters relating to the execution and progress of the work or the interpretation of the Contract Documents.

	E. Clean Up	Except as otherwise specifically provided in this contract, all disputes concerning questions of fact arising under this contract shall be decided by the Technical Working Group for Infrastructure, whose decisions shall be final and conclusive upon parties as to question of fact. The Contractor, prior to the turnover of the work to the Procuring Entity, shall remove any excess materials, waste, debris, rubbish, and all construction and installation equipment and tools from the premises.
Site Work	**Security Fences**	The Contractor shall enclose the site he possessed by a security fence with gate. See-through security fence shall not be allowed.
Structural Concrete	**1. Portlant Cement Pavement** **2. Aggregate Base Course**	- min. of 3000 psi 150mm Thickness - ¾ Aggregates 150mm Thickness Note: Please conform to DPWH Standard Specification.
Lighting Fixtures	**Street Lights**	100 – 150 watts Flood light LED, Underground wiring

B. With respect to the construction of the buildings and other structures, the design and specifications shall conform to the standards set by:

1. Department of Public Works and Highways (DPWH)
2. National Building Code of the Philippines (NBCP) National Structural Code of the Philippines, 2010
3. Electrical Code of the Philippines
4. Sanitary Code of the Philippines
5. Plumbing Code of the Philippines
6. Accessibility Law
7. Environmental Impact Statement as defined by the DENR other Engineering Standards.

C. Technical Reports on structural, electrical, and sanitary engineering including actual test or site and soil investigations shall be required.

D. A complete set of architectural, engineering drawings and structural plans in 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 National Building Code of the Philippines shall be furnished by the bidder.

E. 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.

F. The bidder shall include in his proposal the cost of the **Completion of Loop (Concreting of 2km Road Network) with Street Lighting** including the Detailed Architectural and Engineering Designs and other related research, Surveys, and technical studies and test or site, soil investigation required, to come out with the design.

G. **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.

H. The winning bidder shall then proceed with the construction of the project under the terms and conditions set forth herein.

I. 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.

IV. DETAILED SCOPE OF WORKS

A. PRE-PLANNING PHASE

Preliminary Investigations. These shall include, among others, information on soil, geotechnical, hydrologic, hydraulic, seismic, traffic, 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 **330 calendar days** reckoned seven (7) days from the date of the NOTICE TO PROCEED

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 right-of-way limits and construction easements associated with the Abucay
Campus conceptual design

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;
(1) Man-made structures

SUBMITTAL/S: Structure Map drawn on an A3 paper size of convenient size and scale, in four (4) Copies - one (1) original white print, and three (3) copies.

a. Soil and Foundation Investigation Report

i. Soil and Foundation Investigation Report required for planning and engineering design, with a Certification from the Municipal Engineer that the bidder conducted the Soil and Foundation Investigation.
If needed for the planning, analysis and design of the project the bidder is expected to conduct site investigation sufficient to determine the bearing capacity and other data of

the soil foundation which is necessary for the overall structural analysis and design of the building, in order to ensure the safety of the structure.

SUBMITTAL/S: Four (4) copies – one (1) original white print, and three (3) copies of the Soil and Foundation Investigation Report

ii. Determine existing and proposed infrastructure, facilities, utilities, etc., which may have bearing on the planning and design exercises;

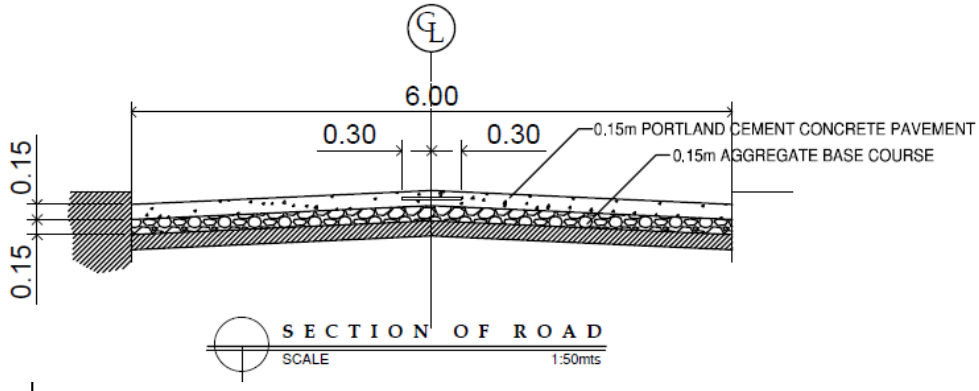
iii. Utility Locations. The procuring entity shall provide information on existing utilities in and around the project's area.

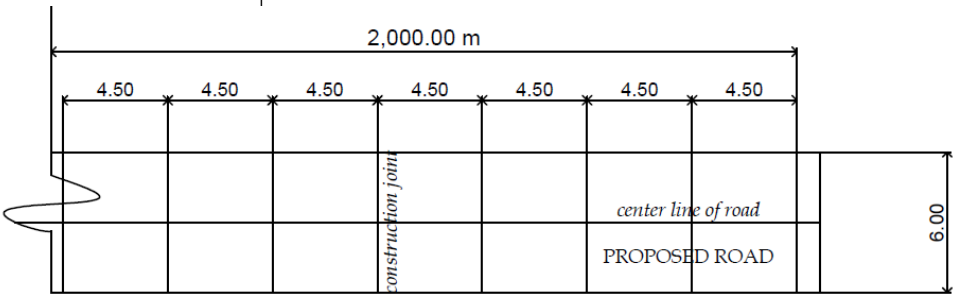
The bidders shall identify/locate the existing utilities at the site, namely:

1. Electrical Power Supply (underground and overhead)
2. Water Supply
3. Sewer and Storm Drainage
4. Telephone Lines (underground and overhead)

SUBMITTAL/S: : Four (4) copies – one (1) original white print, and three (3) copies 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 construction and the extent that they will have to be relocated.

b. Completion of Loop (Concreting of 2km Road Network) with Street Lighting





NOTE:
1. at every construction joint provide 16mmØ bar spaced at 0.60m on center

2. Provide street Lamp for every 15m alternate. (specs are subject for approval)

PLAN
SCALE NTS

V. DESIGN CONSIDERATIONS

A. Structural Design

1. The bidders shall prepare the necessary structural analysis/ calculation and design of the structural members in accordance with the DPWH standards.
2. On the basis of the Data obtained from the detailed site investigations, topographical/ engineering, foundation investigation, material testing, survey of existing site conditions, the seismic requirements of the area and other investigations required to obtain the data necessary to ensure the safety of the structure.

B. Engineering Drawings

1. General

a. The detailed design shall conform to the general standards adopted by the National Building Code and other pertinent laws of building 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. Drainage and Sewerage

a. Drainage and sewerage shall be open-type with steel gratings.

b. The drainage layout shall show all the required information such as direction of flow, manhole to manhole distance and sizes of lines, invert elevation of manholes/canals, location of outfalls, etc.

c. Design shall be supported with design computation.

3. Electrical Engineering Drawings

a. The bidders shall prepare a design for the electrical system of the building in accordance with the Philippine Electrical Code latest edition, Fire Code of the Philippines, National Building Code of the Philippines and Local Electrical Utility requirements.

a.1. Power supply (Secondary Voltage) from the Calculated Transformer size (with adequate spare capacity) shall be 3Phase, 230V DELTA connection 60 Hz System, with equipment grounding

b. The bidder shall submit/furnish Electrical Design Analyses such as short circuit calculation, voltage drop calculation, protection coordination analysis and load flow analysis for the entire electrical project study, duly signed and sealed by a licensed Professional Electrical Engineer as the requirement by the Philippine Electrical Code, Local Authority having Jurisdiction and other Government entity.

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

a. Architectural plans in ten (10) copies – three (3) white print, and seven (7) blueprints drawn in 20x30 tracing paper in duly signed and sealed by a licensed Architect.

b. Structural plans in ten (10) copies – three (3) white print, and seven (7) blueprints drawn in 20x30 tracing paper, SCALE: 1:175 plans/ seven (7) copies structural analysis and design in short/long bond paper size duly signed and sealed by a licensed Civil/Structural Engineer.

c. Plumbing plans in ten (10) copies – three (3) white print, and seven (7) blueprints drawn in 20x30 tracing paper, SCALE: 1:150 plans / seven (7) copies plumbing design analysis in short/long bond paper size duly signed and sealed by a licensed Master Plumber. Other pertinent requirements as required by Building Official.

d. Electrical plans in ten (10) copies – three (3) white print, and seven (7) blueprints drawn in 20x30 tracing paper, SCALE: 1:150 plans / ten (10) copies voltage drop analysis, short circuit load analysis, computation of illumination in short/long bond

paper size duly signed and sealed by a Professional Electrical Engineer. Other pertinent requirements as required by Building Official.

e. DOLE Requirements for Construction Safety and Health Program (CSHP) signed by a Safety Officer.

VI. 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. 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

Fringe benefits, such as vacation and sick leaves, benefits under the

b.2. 'workmen's Compensation Act GSIS and SSS contribution, allowances, 13 month pay, bonuses etc.

c. Equipment Expenses:

c.1. Rental of equipment which shall be based on the prevailing "Associated Construction Equipment Lessors, Inc." (ACEL) rental rates approved for use by the DPWH (Presently it is the 2009 ACEL Rates). Rental rates of equipment not indicated in the ACEL booklet shall be taken from the rental rates prepared by the DPWH Bureau of Equipment. For simplicity in computation, the operated rental rates are preferred over the bare rental rates as the former includes operator's wages, fringe benefits, fuel, oil, lubricants and equipment maintenance. The make, model and capacity of the equipment should be indicated in the detailed unit cost analysis.

c.2. Mobilization and demobilization, shall be treated as a separate pay item. It shall be computed based on the equipment requirements of the project stipulated in the proposal and contract booklet. In no case shall mobilization and demobilization exceed 1% of the Estimated Direct Cost (EDC) of the civil works items.

2. The Indirect Cost shall consist of the following:

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

f. The following non-civil works items shall not be subjected to OCM mark-up:

f.1. Field/Laboratory Office & Living Quarters (Rental Basis)
f.2. Furnishing, Laboratory Equipment, Survey Equipment and Consumables
f.3. Assistance to the Engineers
f.4. Photographs B.7.5 Health and Safety B.7.6 Traffic Management
f.5. Environmental Compliance
f.6. Communication Equipment, etc.

I. CONSTRUCTION PHASE - CONSIDERATIONS

A. Permits and Clearance

The bidders shall defray and all expenses necessary and incidental for the Completion of Loop (Concreting of 2km Road Network) 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. Building Permit
2. Certificate of Completion of the Building c. Occupancy Permit
3. All other permits as may be required for the construction

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.

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 Structural Engineer
        a.2.Licensed Master Plumber
        a.3.Professional Mechanical Engineer
        a.4.Professional Electrical Engineer
        a.5.Professional Electronics Engineer
        a.6.Sanitary Engineer

    b. Construction Group
        b.1. Project Manager
        b.2.Project Engineer
        b.3.Material Engineer
        b.4.Foreman
        b.5.Safety Officer
        b.6.First Aider

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