DEPARTMENT OF PUBLIC WORKS & HIGHWAYS

TERMS OF REFERENCE

Consulting Services for the Conduct of the Pre-Feasibility Study (Phase II) of Kauswagan - Esperanza Diversion Road

1 INTRODUCTION

Barangays Switch, Katipunan, Magsaysay and Mabini are barangays in the municipality of Ramon Magsaysay which is a landlocked, 4th class municipality in the province of Zamboanga del Sur. It occupies a total land area of 113.70 square kilometers or 43.90 square miles which constitutes 2.54% of Zamboanga del Sur's total area. Its population as determined by the 2020 Census was 27,280. This represented 2.60% of the total population of Zamboanga del Sur province, or 0.70% of the overall population of the Zamboanga Peninsula region. Based on these figures, the population density is computed at 240 inhabitants per square kilometer or 621 inhabitants per square mile. *(https://www.philatlas.com/mindanao/r09/zamboanga-del-sur/ramon-magsaysay.html)*

Traversed via Jct. Monte Alegre – Switch Road. It is also accessible on the west through Eastern Bobongan – Sominot – Midsalip Road and on the east with the Jct. Aurora – Ozamis City Road.

The estimated 12.7-kilometer alignment of the road aims to aid development in these municipalities of Zamboanga del Sur, in terms of agriculture, tourism and safety. Slowly becoming a farm tourism destination, the municipalities potential for development requires infrastructure support to help further not only of their objectives, the Province of Zamboanga del Sur but most especially the populace. The proposed diversion road, will not only ease traffic along the major routes of Jct Aurora – Ozamis City Road but would also be beneficial to farmers in the transport of their goods.

2 OBJECTIVES

The main objective of the proposal under this TOR is to continue with the initial studies accomplished under its Phase I funding which is to determine the viability of the proposed road project considering the technical aspects among others. Additionally, this Pre-Feasibility Study (F/S) shall ensure that value engineering/value analysis (VE/VA) is undertaken with regards to the selection of the best structural configuration. This is to ensure that the best scheme for providing the project's intended outputs will be selected that would yield the highest value-for-money (VfM).

By the end of the consulting period, the Consultant is expected to produce a comprehensive Pre-F/S based on updated information with a definite implementation plan of the recommended scheme based on the alternatives/configurations considered. Specifically, it aims to achieve the following undertakings:

2.1 Provide the complete set of DED Plans and Design Reports in accordance with the accepted engineering design principles and design guidelines, criteria, and standard requirements of the DPWH Design Guidelines Criteria and Standards 2015 Edition.

2.2 Provide the most cost-efficient project estimates using unit price analysis method that would yield the highest value-for-money.

3 SCOPE OF CONSULTING SERVICES

The scope of works of the Consultant under this TOR shall include the technical considerations to establish the overall viability of the investment in coordination/consultation with beneficiaries and other stakeholders as necessary. The consulting services will include the following major activities:

A. DETAILED ENGINEERING DESIGN

During the detailed engineering design, the Consultant shall coordinate and report to DPWH ZDS1 PDS for uniformity and cohesiveness in the preparation of related documents, consistent with the DPWH structural design criteria and specifications, and other applicable provision of existing laws, codes and Department Orders. The final plans shall be full responsibility of the Design Consultants. Pursuant to Section 4 of Annex "A" of the Revised Implementing Rules and Regulations of R.A. 9184, approval by the authorized DPWH undertaken by Consultants neither diminishes the responsibility of the latter for the technical integrity of the surveys and design nor transfer any part of that responsibility to the approving official.

1. Geometric Design

The Consultant shall prepare geometric designs including channelization on major intersections based on traffic, physical, economic and human factors in close coordination with BOD prior to the establishment of Structural Design Standards.

2. Pavement Design

The road structure and pavement design for construction of new pavement and strengthening of existing pavement will be carried out taking into proper account the conclusions and recommendations of the Pavement Axle Load Study, as approved by the DPWH.

Account will be taken on the main design elements: bearing capacity of the subgrade soils, traffic volume, composition and maximum load forecasted traffic. The Consultant shall design the pavement structure toll using the AASHTO Pavement Design Guide (latest edition).

3. Structural Design

On the basis of the results of the preliminary studies and geotechnical Investigations, the Consultant shall provide plans, taking into account, the main design elements: bearing capacity of the subgrade soils, traffic volume, composition and maximum load forecasted traffic.

The Consultant shall make use of the data gathered and collected from the existing sources and the information obtained directly on the site.

On the basis of the detailed site investigations, topographic survey, the Consultant shall prepare the final design of the structure, including necessary facilities and appurtenances.

4. Hydrological and Drainage Surveys

All available data (physical and geological maps of the territory, climatology reports, hydrological reports and maps, drainage master plans and local drainage system plans, flood control project plans, etc.) related to the Project shall be collected and examined by the Consultant who shall integrate such data with information collected directly on site and from local government unit (LGU) office (trend of water course, stream velocity and maximum flood levels, flood prone areas, existing drainage system characteristics and conditions, and design discharge for 50 years return period (for bridge) and 25 years for box culverts).

The extent and nature of the catchment basin of the different water courses shall be determined by examining available topographical and geological maps as well as by means of direct investigation.

Hydrological/Hydraulic Reports shall be reviewed/evaluated by the DPWH ZDS1 PDS in conformity with DPWH DGCS 2015 Ed., Volume 3 – Water Engineering Projects.

5. Drainage Design

Detailed drainage design shall be carried out by the Consultant in accordance with the DPWH DGCS, 2015 Ed., Volume 3 – Water Engineering Projects, and on the basis of the hydrological and drainage survey study results taking into proper consideration general and particular problems such as minimum pipe diameter to be used to ensure satisfactory execution of drainage maintenance, drainage (flooding) problems of the Project roads, etc.

Existing structures shall be replaced if found inadequate. Outfall/discharge points shall be identified, investigated as to its level of service and be shown on plans.

6. Preparation for Detailed Engineering Drawings

The existing alignment and roadside appurtenances/structures and all the proposed improvement are to be traced in layout plan at a scale of 1:1,000 m. together with all watercourses, which require structural work. Cross-sections at intervals not exceeding

20 m. including intermediate breaks on the ground and at bridge/flyover approaches and reaching at least 10 m. wide on both side of the centerline, are to be surveyed and plotted at a scale of 1:100 m. The detailed cross-section shall show, but are not necessarily limited to, the following:

a. coordinates
b. pavement and shoulder widths
c. cross slopes including super elevations, where required
d. new pavement thickness
e. slopes of embankment and cuts including slope protection structures as well as longitudinal drainage ditches with their dimensions, if any, and
f. existing roadside appurtenances/structures

Separate cross-sections shall be prepared if necessary for road sections outside and inside township, the latter indicating possible reduced width of pavement and/or shoulders and for every station or location of drainage structures and facilities. To show or indicate the sufficient height of the road above highest flood level (HFL), longitudinal sections at scales of 1:1,000 m. horizontal and 1:100 m. vertical will be prepared for all sections where raising of embankment is required.

Whenever there is a need for the relocation of utilities such as telephone, telegraph and electricity poles, etc. as well as buildings fences and major trees to be removed, such details shall be indicated in the drawings and a separate list shall be prepared.

7. Special Provisions

Prepare and submit to DPWH, for approval, specifications for the environmental mitigation measures, for a specific item of work or methods of construction, measurement and payment under each contract which are not covered by the Specifications for Highways and Bridges revised 2013 and Special Conditions of Contract.

B. DETAILED ESTIMATES

1. Quantity Calculations

The Consultant shall calculate the quantities of the different types of work to be carried out for the project to an accuracy of ±10%. In particular, the quantities of each item shall be calculated and a quantity Take-Off Report (including electronic files) shall be prepared and submitted to the DPWH ZDS 1st DEO

2. Unit Price Analysis

Preparation of project cost estimate using unit price analysis method for various pay items to include direct materials, equipment and labor costs, profit and VAT; engineering design cost and other ancillary works such as temporary fencing and traffic management which shall be treated as indirect cost. The estimated costs will also include the cost of insurance, environmental monitoring and mitigation measures, permits and licenses and other fees.

The Consultant shall prepare, update and consolidate the Unit Price Analysis of each of the main work items for the radial road. The unit price of each of the main work items shall include:

a. Direct Costs
   - Cost of materials (cost at sources, transport, handling, storage, miscellaneous expenses and allowance for wastage);
   - Cost of construction plant and equipment including depreciation or rental rates, wages of operators, fuel, oil lubricants and maintenance; and
   - Cost of labor, including salaries, wages, cost of living allowance and all fringe benefits.

b. Indirect Cost
   - Overhead;
   - Profit, and
   - Taxes

Each unit price analyzed shall be broken down into local currency and tax components.

4. IMPLEMENTATION

A. STAFFING

The Consultants shall be composed of qualified staff with skill and experience necessary to undertake the range of task set out in these Terms of Reference. These key personnel shall be supported by adequate technical and administrative staff.

The above-mentioned key staff should have appropriate educational degree, relevant trainings and adequate years of experience in detailed engineering design of bridge/flyover projects.

B. REPORT REQUIREMENTS AND DELIVERABLES

The Consultant shall submit the following deliverables in the specified timeline:

PHASE II. DETAILED ENGINEERING DESIGN (DED) and DETAILED ESTIMATES	
DED Proper: Draft Detailed Engineering Design (DED) Plans and Drawings Design Reports and Tender Documents	- 2 copies; to be submitted for review by BOD not later than two (2) months after the actual starting date of the services. The plans and reports shall consist of, but not limited to, the following: a) Draft DED Plans and Drawings (A3-size print copies) b) Design Reports (A4-size) (not limited to the following): - Hydrologic/Drainage Reports - Highway/Geometric Design Report - Structural Analysis Reports - Pavement Design Reports c) Draft Tender Documents (A4-size, under "Confidential" cover) (not limited to the following): - Quantity Calculations (with Back-up computations) - Price Analyses - Cost Estimates - Pre-qualification, Bidding and Contracting Documents
Final DED Plans and Drawings including Design Reports and Tender Documents	- to be submitted within three (3) months upon the Consultant's receipt of comments on the respective draft plans, drawings, reports, and tender documents. a) Final DED Plans shall be in one (1) original copy (A-3 size, White paper) for approval, and two (2) reproduced copies (A3-size) of the approved White Paper Plans. b) Final Design Reports (consolidation of all design reports) shall be in three (3) copies; c) Final Tender Documents shall be reproduced in three (3) sets.

In addition, the Consultant shall submit:

Monthly Progress Reports (1 copy) to be submitted monthly before the 25th day of each month, which is reckoned as the cut-off date for the reporting month. The Monthly Progress Report shall present the work progress, problems encountered, counter-measures taken and anticipated services for the next period of services.

Draft DED and Draft Detailed Estimates (payment of 50% from total project cost) shall also be submitted at the end of the services period, giving a summary of the whole program of work carried out during the period of services

Final DED and Detailed Estimates (payment of 50% from total project cost) shall also be submitted at the end of the services period, giving a summary of the whole program of work carried out during the period of services.

4 STUDY SCHEDULE

The Study shall be completed within a period of three (3) months, commencing from the date of receipt of the Notice to Proceed (NTP).

5 HUMAN RESOURCE/ STAFF REQUIREMENT

The Consultants shall be composed of qualified staff with experience in the conduct of data gathering for infrastructure feasibility studies including preliminary design, traffic, social, and environmental impact assessment.

KEY STAFF	Week											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Highway Engineer												
2. Cost/Specifications/Quantity Engineer/ Construction Planner												
3. Civil Engineer (CADD Operator)												

6 INSTITUTIONAL ARRANGEMENT

8.1 Implementing Office (DPWH Zamboanga del Sur 1st District Engineering Office)

8.1.1 Disburse the fund for the conduct of the F/S once the contract is executed;

8.1.2 Implement and manage the contract, including ensuring the quality of output, the monitoring and evaluation of the progress of the study and approval of reports to ensure delivery of outputs as specified in this TOR;

8.1.3 Provide assistance in the coordination with other concerned agencies/entities in the conduct of the study, such as securing the required permits(s) from the Protected Area Management Board (PAMB) - Department of Environment and Natural Resources (DENR) for the conduct of activities and entry into the protected area, among others;

8.1.4 Provide reasonable technical assistance to personnel of the Consultant with respect to incidents related to the conduct of the study;

8.1.5 Provide, upon the request of the Consultant, available information/data and also if available, copies of previous related studies subject to the execution of the Confidentiality and Non-Disclosure Agreement (CNDA), if necessary.

8.2 [1]Planning Service – Central Office

8.2.1 Provide technical assistance to the Implementing Office

8.2.2 Be responsible for contract implementation and management, including ensuring the quality of output, the monitoring and evaluation of the progress of the study and approval of reports to ensure delivery of outputs as specified in this TOR;

8.2.3 Conduct final design and estimates review.

8.3 Consultant

8.3.1 Conduct the study and deliver on time the results/outputs as indicated in this TOR;

8.3.2 Provide the necessary office equipment (i.e., computer, printers, office supplies, etc.) for the conduct of the study. All equipment procured for the development of the project shall be transferred to the Government by the end of the project;

8.3.3 Shoulder all expenses required in the conduct of the study, including travel costs and lodging of detailed Government personnel during field visits, except for their salaries;

8.3.4 Carry out the services with sound engineering theories and practices to ensure that the final works will provide the most economical and feasible development for the study;

8.3.5 Accept full responsibility for the consulting services to be performed under this TOR for which the Consultant is liable to DPWH;

[1] Include only if the RO or DEO is the Implementing Office. No need to include if the Central Office is the IO

8.3.6 Perform the work in an efficient and diligent manner and shall use its best effort to keep reimbursable costs down to the possible minimum without impairing the quality of services rendered;

8.3.7 Comply with, and strictly observe any laws regarding workmen's health and safety, workmen's welfare, compensation for injuries, minimum wage, hours of labor and other labor laws;

8.3.8 Keep accurate and systematic records and accounts in respect of the services in such form and detail as is customary and sufficient to establish accurately that the costs and expenditures under this TOR have been duly incurred;

8.3.9 Permit the duly authorized representatives of the Government from time to time to inspect its records and accounts as well as to audit the same;

8.3.10 Not allowed to assign nor sub-contract any part of the professional engineering services under this TOR to any person or firm, except with prior written consent. The approval by the Government to the assignment of any part of said services or to the engagement by the Consultant of sub-contractors to perform any part of the same shall not relieve the Consultant of any obligations under this TOR;

8.3.11 During the term of the contract and after its termination, the Consultant and any entity affiliated with the Consultant, as well as any Sub-consultant and any entity affiliated with such Sub-consultant, shall be disqualified from providing goods, works, or consulting services for any project resulting from or closely related to the contract other than the services and any continuation thereof provided there is no current or future conflict;

8.3.12 Prohibit full-time foreign staff during his assignment under this TOR to engage, directly or indirectly, either in his name, or through the Consultant, in any business or professional activities in the Philippines other than the performance of his duties or assignment under this TOR;

8.3.13 Not allowed, at any time, to communicate to any person or entity any information disclosed to them for the purpose of this services, nor shall the Consultant make public any information as to the recommendations formulated in the course of or as a result of the services, except with prior consent;

8.3.14 Agree that nothing contained herein shall be construed as establishing or creating between the Government and the Consultant, the relationship of employer and employee or principal and agent, it being understood that the position of the Consultant and anyone else performing the services is that of an independent contractor;

8.3.15 Hold the Government free from any and all liabilities, suits, actions, demands, or damages arising from death or injuries to persons or properties, or any loss resulting from or caused by said personnel incident

to or in connection with the services under this TOR. The Consultant shall agree to indemnify, protect and defend at its own expense the Government and its agents from and against all actions, claims and liabilities arising out of acts done by the Consultant or its staff in the performance of the services, including the use of, or violation of any copyrighted materials, patented invention, article or appliance; an

8.3.16 Provide on-the-job capacity building/technology transfer to the Government's personnel detailed to the project.

7 OWNERSHIP OF THE OUTPUTS/REPORTS/DOCUMENTS

All submitted outputs/reports/documents under this contract, including but not limited to tracings, as-built drawings, estimates, digital information, computer model and data, specifications, investigations and studies completed or partially completed, inspection logs, and photographs, shall be the property of DPWH and the use of these data for other purposes shall require written consent from the Department. Copyrights will be governed by existing laws, rules and regulations.

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