Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
Batangas III District Engineering Office
J. Gonzales St., Barangay 4, Tanauan City, Batangas, Region IV-A

BAGONG PILIPINAS

TERMS OF REFERENCE

Consulting Services for the Conduct of Topographic and Geotechnical Survey and Analysis for the Pre-Feasibility Study of the Proposed Tanauan City Diversion Road

1. INTRODUCTION

The Department of Public Works and Highways (DPWH) is seeking to develop its pipeline of road transport projects nationwide for implementation, financed either through local funds (GAA) and/or external sources (e.g., ODA, PPP). As part of the initial stage in the project development cycle, feasibility studies assessing the technical, economic, social impacts of the project, and the detailed engineering design are required.

The Pre-Feasibility Study of the Proposed **Tanauan City Diversion Road** (hereinafter referred to as the **"Project"**) is envisaged to be carried by local consultant to be outsourced by DPWH Batangas 3rd District Engineering Office (hereinafter referred to as the "Implementing Office"). The study is expected to determine the extent and nature of improvements/construction required, to gather data through topographical surveys and geotechnical investigation surveys for the conduct of assessment and evaluation of the feasibility of the Tanauan City Diversion Road project. The findings of the study are intended for use by the DPWH for programming purposes and for its implementation through local financing/external sources if determined to be feasible.

This Terms of Reference (TOR) refers to the services to be undertaken by the Consultant for the preparation of the Pre-Feasibility Study for the Proposed Project

A. The Proposed Tanauan City Diversion Road

The project is envisioned to boost economic developments on the aforesaid territories of Batangas, which shall connect the nearby economic/agricultural/tourism zones.

The proposed project is composed of 2.97-km road and two (2) bridges. The project herein is expected to serve as an alternative route that will divert traffic to and from National Primary Road Manila - Batangas Road and Secondary Road Tanauan – Talisay – Tagaytay Road. It can also help decongest the Entry Exit Point of STAR Tollways Corporation Tanauan City Exit.

2. OBJECTIVES

The objectives of the consulting services are to:

1. Conduct a Multi-Criteria Analysis (MCA) for three (3) Alignment Options and present it to the Implementing Office during the Kick-Off Meeting;
2. Conduct preliminary surveys which shall include, but not limited to, topographic survey, geotechnical investigation and analysis;
3. Provide a technical basis for recommended preliminary designs of road/highway geometry, bridge, drainage, road safety and pavement design in accordance to DPWH Standards;
4. Explore the subsurface conditions of the area and provide general data related to the project;
5. Address comprehensively all geotechnical concerns that may arise throughout the project; and
6. Gather relevant data that will likely affect the design and construction procedures and activities.

3. SCOPE OF CONSULTING SERVICES

A. GENERAL

1. The Consultant shall provide professional services necessary for carrying out the objectives set out in this Terms of Reference (TOR) by conducting the necessary studies, field surveys and investigation, preparation of detailed engineering plans and specifications, cost estimates, bidding and contract documents, and other requirements stipulated herein for the implementation and construction of the project.

2. The Consultant shall coordinate and report directly to the DPWH Batangas 3rd District Engineering Office – Planning and Design Section to obtain uniformity and cohesiveness in the preparation of related documents consistent with DPWH Design Guidelines, Criteria and Standards (DGCS) 2015 Edition and applicable provisions of existing laws, codes, policies and Department Orders.

3. The Consultant shall establish and maintain proper coordination with the District Office of DPWH, Regional Development Council and concerned Local Government Units (LGU's) for consultation on any project-related issues and concerns.

4. The Consultant shall make sure to document all activities with geotagged photographs.

5. The Consultant shall coordinate with this Office prior to their conduct of the Engineering Surveys and Activities related to the Environmental and Social aspects of the road project. Environmental and social mitigation measures shall be in accordance with the DPWH Updated Social and Environmental Management System (SEMS) Operations Manual, 2016 Edition, and related Department Issuances for procedures, rules, and responsibilities of all offices concerned.

6. In the preparation of drawings, the Consultant shall use Computer Aided Design (CAD) software. All electronic files or reports, drawings and other relevant documents shall be turned over by the consultant to the Implementing Office through the Planning and Design Section (PDS).

B. THE SERVICES

1. Feasibility Study

The Consultant shall prepare a Pre-Feasibility Study and submit to the Planning and Design Section for review/comments and approval. The study shall contain, but not limited to the following:

1.1. Alignment Study

The Consultants shall identify at least **three (3) possible alignments** considering the technical, financial, environmental and social aspects of the project and present to the implementing office for approval and selection of the best alignment.

Analysis. The selection, recommendation and approval of the *best alignment* shall be based on the formulated Comprehensive **Multi-Criteria Analysis (MCA)** that takes into consideration the physical characteristics, technical complexity, strategic fit, social and environmental impact of the proposed project.

The Consultant shall submit a separate report of the Multi-Criteria Analysis (MCA) to the implementing office and discuss the selected alignment on the official kick-off meeting, 2-weeks after the issuance of Notice to Proceed (NTP).

2. Design Data Collection

The Consultant shall gather all necessary pertinent data about the project particularly on its topography, which often impose limitations upon location and design, and conduct site inspection on foot, jointly with the Implementing Office.

The Consultant shall conduct design data collection activities to verify and validate the recommendations of the Feasibility Study.

2.1. Preliminary Engineering Surveys

2.1.1. Topographic Survey

a. Undertake preliminary topographical survey along the selected alignment. The Consultant shall set out and establish reference points at appropriate locations as key control points of the survey. These points shall be used as benchmarks for identification and use during the subsequent engineering surveys. ("Geo-tagging").

b. The leveling shall be tied to the existing Government benchmarks in the area.

c. Cross-sections shall be taken at fifty (50) meters interval, unless local conditions require cross-section at closer intervals so as to provide the necessary details for earthwork, quantity calculations with an accuracy of twenty percent (20%) of the final quantities.

d. Profiles and cross-sections shall be determined plus one hundred (100) meters beyond construction limits. Topographic maps with contours at 50-meter interval and coordinates and vicinity plan shall be prepared by the Consultants. All survey plans shall be prepared on reproducible materials of high quality.

e. River/creek profile and river/creek cross sections shall be surveyed for 500 meters each upstream and downstream sides from the centerline of the bridge. Cross-sections shall be measured at 50-meter interval.

f. All survey information and data shall be recorded and preserved in standard survey forms and notebooks, however, subject for review/checking of the Implementing Office. Upon completion of the works, all original survey notes will become property of the Implementing Office.

g. Relative to the data gathered, satisfactory harmony between the horizontal and vertical geometry can be established in complimentary with the existing terrain.

h. All activities shall be properly documented with geotagged photographs using NoteCam or similar applications.

2.1.2. Geological and Geotechnical Investigations

a. The Consultant shall review all existing geological information/data relevant to the project such as: Preliminary Geohazard Assessment Report, Topographic map, geological maps, soil/agricultural maps, drilling logs and soil exploration plan.

b. The Consultant shall conduct field reconnaissance to the project site in order to validate the existing geological data and gather additional information that will affect the proposed foundation design and boring plan.

c. The Consultant shall gather information such as: accessibility, proposed drill/borehole location, necessary equipment and conceived difficulties to expect on the conduct of drilling/boring operation.

d. The Consultant shall conduct site inspection before or during the conduct of soil exploration of a project and prepare an inspection report containing, among others, the following: description of the project site, observations,

expected site geology and soil type, topography, vegetation, findings, comments and recommendations, and reasons for any significant deviation from the geotechnical programs, if it happens.

e. The Consultant shall perform testing procedures and analysis in accordance with the DPWH Design Guidelines, Criteria Standards (DGCS), Volume 2C (Geological and Geotechnical Investigation), 2015 Edition and applicable provisions of existing laws, codes or issuance of the Department in order to come up with the recommendations and design criteria.

f. The Consultant shall conduct soil sampling on the proposed road alignment by Auger Boring and Test Pit spaced at every 1000-meter interval or less with a minimum depth of 1.50 meters. Soil samples taken shall be subjected to natural water content, mechanical analysis, Atterberg limits, moisture density relations, California Bearing Ratio and soil classification.

g. The Consultant shall conduct one (1) deep drilling at each abutment location and one (1) borehole at every onshore and offshore pier of each candidate site.

h. The Consultant shall conduct drilling of shallow and deep foundations in accordance with DPWH DGCS, Volume 2C, 2015 Edition. Soil samples shall be tested for the determination of soil characteristics (grain size distribution and classification, natural moisture content, Atterberg limits, specific gravity, shear strength test, etc.) to be used as geotechnical parameters for foundation design.

i. The Consultant shall conduct deep borings for sections with geological problems in order to provide information on materials, which may cause problems with respect to stability, settlement, etc.

j. The Consultant shall subject disturbed and undisturbed soil and rock samples to physical and mechanical tests and analyses to include shear strength tests necessary for analysis of slope stability, settlement and subsidence.

k. The Consultant shall delineate and identify geological structure, especially active faults and potential mass movement areas that might traverse the project area including analysis for liquefaction potential during earthquake and consolidation due to soft ground.

4 REPORTING

4.1 Final results will be presented to the Planning Service and Planning and Design Division of the Regional Office concerned.

4.2 During the contract period, coordination meetings with the District Engineering Office and Regional Office concerned must be conducted to: (a) initiate agreements, (b) discuss the progress of the work and preliminary output; (c) make comments and suggestions on a timely basis; and (d) resolve problems and issues that may be encountered.

4.3 The Consultant shall also accommodate up to five (5) on-the-job observers (e.g., personnel from the Planning Service – Central Office and Regional Office), who shall be detailed to the project for the purpose of capacity-building and technology transfer.[3]

4.4 Further, aside from the specified scope of works mentioned above, the Consultant may propose additional works to enhance the study. The scope of any additional proposed works by the Consultant shall be established within the first two (2) months of the study, subject to the approval of the DPWH.

5 EXPECTED DELIVERABLES OF THE CONSULTING SERVICE

5.1 Inception Report

To be submitted **within the week** after effectivity of the contract, binded in A4 sized Bond paper, in **two (2) hard copies.**
It will outline a detailed work program and briefly describe the methodology proposed to meet the terms of reference. The report will include the initial findings as well as preliminary layout of the forms to be used for various investigations and calculations, Multi-Criteria Analysis for the three (3)-Alignment options, and proposed Activity-Time Schedule in Bar Chart Form

Discussions on Project Background and Description, Objectives, Scope of Work and Survey Methodologies shall also be included and presented in the following;

i. Project Background
ii. Project Description
iii. Objectives
iv. Scope of Work
v. Alternative-Alignments Assessment
    1. Presentation of Three (3) Alignment Options
    2. Multi-Criteria Analysis
    3. Recommendation
vi. Proposed Work Program
vii. Survey Methodologies
viii. S-CURVE/Manning/Activity Schedule (A3 Sized paper)
ix. Company Profile

5.2 Progress Report

To be submitted together with the request for progress billing, binded in A4 sized Bond paper, in **two (2) hard copies.**

The Progress report shall contain the following:

1. Overall Accomplishment report
    a. Narrative Report of the activities conducted
    b. Percentage Per Planned
    c. Percentage Per Actual
    d. Positive/Negative Slippage
    e. Summary of Findings, Issues/concerns/problems
2. Updated S-CURVE/Manning/Activity Schedule (A3 Sized paper)
3. Documentation (Geotagged Photographs with date) for every activity during the implementation.

5.3 The Draft Final Report shall contain the following major deliverables of the Study

5.1.1 Overall Summary of Accomplishment Report
5.1.2 Plan and Profile with the Final alignment incorporated in the Topographic/Hydrographic Plans
5.1.3 Laboratory Test Accomplishment Report (if applicable)
5.1.4 Preliminary Highway Engineering Design and Studies/Assessment Report (typical Roadway Section, Summary of Quantities[4], Table of Reference of Horizontal and Vertical Control)
5.1.5 Other data/documents to be submitted shall include but not limited to:
5.1.5.1 Geo-tagged Photographs
5.1.5.2 Latest Comprehensive Land Use Plan (CLUP), Comprehensive Development Plan (CDP) and other related plans of all Cities/Municipalities within the project's influence area
5.1.5.3 Map of the alignment (including shape file format and CAD file with coordinates), plotted/converted to PRS92

All outputs shall be presented in a Feasibility Study report[6], in English language, and shall be submitted to DPWH in three (3) copies. Electronic file formats (i.e., Microsoft Office, Adobe PDF, AutoCAD, transport model input and output files, etc.) of all reports and documents systematically organized in traceable and auditable formats shall be prepared in 1TB Hard Drive (3 unit).

[3] Applicable for big-ticket projects (worth more than 2.5B) only; [4] See Annex G for the prescribed template in providing the summary of cost estimates;
[5] Includes Stakeholders Analysis, Standards for Gender Analyses, and Gender-Aware Cost Benefit Analysis, as described in Tool Nos. 2 to 4 of the DPWH GAD Toolkit; and [6] Observe proper citation of references.

All Draft Final Outputs shall be submitted at least two weeks prior to the contract expiration and be subjected to review and evaluation of the Implementing Office, PPD, ESSD, and other relevant offices as deemed necessary. The reviewing office shall review the draft reports for a maximum of two weeks. Therefore, Final Reports are expected to be delivered not later than the contract expiration.

5.4 Deliverables for Geological/Geotechnical Investigation (Survey)

The Consultant shall prepare the final report in four (4) bound copies in a form and substance to be submitted to DPWH Batangas III District Engineering Office within **Thirty (30) Calendar Days** upon receipt of the Notice to Proceed. It shall include, but not limited to the following:

a. Field Investigation and Methodology
b. Borehole Drilling and Sampling
c. Laboratory Testing
d. Regional Geology
e. Soil Bearing Capacity
f. Vicinity Maps in scale of 1:50,000
g. Final Boring Logs (BL)
    i. Job, Boring, Hole Number, Date, Time, Boring/Drilling Foreman and Supervisor
    ii. Weather Condition
    iii. Depth of Water Level
    iv. Method of Penetration and Flushing System
    v. Description of Soil Strata encountered
    vi. Depth of soil boundaries
    vii. Size, type and depth of samples and sample number
    viii. Type and depth of in situ test
    ix. Standard Penetration Tests Resistance, "N" values
    x. Detailed notes on boring/drilling procedure, casing sizes and resistance to driving, description of wash water or spoil from boring/drilling tools
    xi. Depth of boring
    xii. Other relevant information such as RQD, percent core recovery, etc.
h. Final Laboratory Test Results
i. Borehole Location Plan in scale of 1:250
j. Soil Profile along structures showing boring/drilling logs
k. Recommendations if called for, such as type of proposed countermeasures/ structures to address geological/geotechnical problems and foundation type
l. Other relevant data

Photographs showing the borehole drilling and sampling at each proposed sites shall be taken by the Consultant and form part of the report. The photographs to be taken shall depict the following:

i. Equipment used

ii. Core drilling operation
iii. Water level measurements
iv. Performance of SPT sampling
v. All cores and SPT sample placed in core boxes
vi. Date photographs were taken
vii. Location or station

5.5 Topographic Survey Plan

a. The Consultant shall submit one (1) set of A-1 size print of the plotted topographic survey plan/profile, and cross-sections for preliminary review.

The below listed documents shall be submitted, if necessary, for use as reference in the review of topographic survey plan, to wit:

i. Survey data/computations
ii. Plan and Profile with the Final alignment and cross-sections incorporated in the Topographic/Hydrographic Plans
iii. Pictures of horizontal/vertical control monuments showing the location and inscriptions
iv. Certification from DENR, of the horizontal and vertical control reference points used in each project
v. Horizontal curve computation
vi. Electronic copy of the final alignment (including shapefile and kml format), plotted in PRS92 coordinates (in dwg format)
vii. Electronic copy of the Complete Report consolidated in one PDF file
viii. Electronic copy of all software input and output files, if applicable

Other data/documents to be submitted shall include but not limited to:

i. Geo-tagged photographs
ii. Map of the alignment plotted/converted to PRS92 (shapefile format and CAD file with coordinates)
iii. Updated barangay shapefiles of the affected cities/municipalities
iv. Overall Accomplishment Reports

b. The review of the topographic survey plan is subject to field verification to minimize changes/modifications and unnecessary delays in the preparation of final plans.

c. The review and approval of the said survey plans by DPWH do not relieve the Consultant from responsibility for the accuracy of the survey works and permanency of the horizontal and vertical ground controls and reference stations due to improper placement.

6 STUDY SCHEDULE

The Study shall be completed within a period of ***one (1) month or thirty (30) Calendar Days*** commencing from the date of receipt of the Notice to Proceed (NTP).

7 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 detailed engineering design, and geological and geotechnical assessment.

Staff	Week			
	01	02	03	04
1. Project Manager/Team Leader				
2. Geologist				
3. Geodetic Engineer				
4. Geotechnical Engineer				
5. Civil Engineer/Materials Engineer				

The Consultant shall provide the following key staff and the job description and required qualifications are prescribed below:

Position	Job Description	No. of Months	Required Qualifications
1. Project Manager/ Transport Planner	Act as the team leader for the study team and ensure timely and quality delivery of the work specified in this Terms of Reference.	1.00	• Registered/Licensed Civil Engineer, or equivalent, with extensive experience in structural design of flood control structures and bridges and construction of modern structures • At least 10 years of experience in the related field; maximum of 15 years' experience in the same field
2. Geologist	Responsible to collect and analyze geological information such as aerial photographs, satellite imagery to determine areas that will require field mapping of project site and surrounding area. To conduct site ocular inspections	0.50	• Registered/Licensed Geologist with a minimum of 2 years of experience in the

Position	Job Description	No. of Months	Required Qualifications
	to create geological map of the existing ground formation along the project alignment specifically at slope disaster areas.		geotechnical engineering field
3. Geodetic Engineer	Undertake topographic survey and provide the necessary topographic maps in aide of the preliminary design of alignment(s).	0.25	• Registered/Licensed Geodetic Engineer, or equivalent, with specialization in geodetic engineering. He/she must have experience in the field of surveying and other related studies • At least 5 years of experience in the related field; maximum of 10 years' experience
4. Geotechnical Engineer	Responsible for conducting geotechnical investigations including data gathering, reporting of information and evaluation of section/ areas of engineering concerns.	0.50	• Registered/Licensed Civil Engineer, or equivalent, with specialization in geotechnical engineering. He/she must have experience in soil, subsurface and geotechnical survey and other related studies • At least 5 years of experience in the related field; maximum of 10 years' experience in the same field
5. Civil Engineer/Materials Engineer	Responsible in supervision of field staff and the methods of work, oversees the progress of works and assists the Geotechnical Engineer in collection of necessary data and information in carrying out detailed soil investigations along the road alignment	1.00	• Registered/Licensed Civil Engineer, or equivalent with experience on soil, subsurface and geotechnical survey and other related studies • At least 5 years of experience in the

Position	Job Description	No. of Months	Required Qualifications
			related field; maximum of 10 years' experience in the same field

8 MODE OF PAYMENT

Payment to the consultant shall be accumulated with the deliverables and reports, scheduled as follows;

PAYMENT SCHEDULE		PERCENTAGE	DELIVERABLE/REMARKS
1.	Mobilization	15%	Upon submission of Inception Report
2.	Progress Billing	20% or above (to be based on the percentage accomplished on the submitted progress report)	Upon submission of Progress Report
3.	Final Billing	100% or based on the submitted output	Upon completion and acceptance of the Final Report

Note: Subject to usual accounting Procedures

9 INSTITUTIONAL ARRANGEMENTS

9.1 Implementing Office

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

9.1.2 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;

9.1.3 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;

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

9.1.5 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.

9.1.6 [1]Coordinate with the Regional Office and Project Preparation Division – Planning Service of the DPWH regarding all the activities relating to the conduct of the study, included but not limited to the implementation timelines, submission of deliverables, notice of meetings, etc. Should the need arise, consult with the PPD-PS in coordination with the Regional Office in the implementation of the study.

9.2 Consultant

8.2.1 Conduct the study and deliver **ON TIME** the results/outputs as indicated in this TOR;

8.2.2 Provide the necessary office equipment (i.e., laptop, smartphone, 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;

8.2.3 Carry out the services in accordance with the accepted theories and practices to ensure that the final works will provide the most economical and feasible development for the study;

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

8.2.5 Perform the work in an efficient and diligent manner and shall adhere to the agreed schedule and deliverables; and

8.2.6 Provide on-the-job capacity building/technology transfer to the Implementing Office.

10 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.

[1] Include only if the DEO is the Implementing Office

Prepared By:

DIANA I. ULITIN
Engineer II

Submitted By:

ERIKA RACHELLE L. LAUREL
OIC, Planning and Design Section

Recommending Approval:

BENSON P. TESNADO
Assistant District Engineer

Approved By:

CAROLINA D. PASTRANA
District Engineer

Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BATANGAS 3RD DISTRICT ENGINEERING OFFICE
J. Gonzales St., Barangay 4, Tanauan City, Batangas, Region IV-A

Project Name and Location :	***Consulting Services for the Conduct of Topographic and Geotechnical Survey and Analysis for the Pre-Feasibility Study of the Proposed Tanauan City Diversion Road***

Contract Duration: *1 month*
30 cd

APPROVED BUDGET FOR THE CONTRACT		
A.	PERSONNEL SERVICES	714,250.00
B.	REIMBURSABLES	71,180.50
C.	SURVEYS	656,750.00
D.	Total A + B + C	1,442,180.50
E.	VALUE ADDED TAX (12% A)	85,710.00
F.	CONTINGENCY (5% D)	72,109.03
G.	GRAND TOTAL (D + E+ F)	1,599,999.53
I.	**SAY**	**1,600,000.00**

Prepared and Submitted By:

ERIKA RACHELLE L. LAUREL
OIC, Planning and Design Section

Recommending Approval:

BENSON P. TESNADO
Assistant District Engineer

APPROVED:

CAROLINA D. PASTRANA
District Engineer

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PERSONNEL SERVICES

		NO.	MONTHS	P-M	MONTHLY RATE	AMOUNT
I.	**Key Staff**					
1	Project Manager/Transport Planner	1	1.00	1.00	325,000.00	325,000.00
2	Geologist	1	0.50	0.50	225,000.00	112,500.00
3	Geodetic Engineer	1	0.25	0.25	225,000.00	56,250.00
4	Geotechnical Engineer	1	0.50	0.50	225,000.00	112,500.00
		4		**2.25**	**Sub-Total**	**606,250.00**
II.	**Technical Support Staff**					
1	Civil Engineer (Engineering Surveys)	1	1.00	1.00	60,000.00	60,000.00
		1		**1.00**	**Sub-Total**	**60,000.00**
III.	**Administrative Support Staff**					
1	Administrative Officer	1	1.00	1.00	48,000.00	48,000.00
		1		**1.00**	**Sub-Total**	**48,000.00**
					Total Personnel	**714,250.00**

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REIMBURSABLES

			Description	Unit	Quantity	Unit Cost	Amount
B.			**Reimbursable Items**				
	1.		Per Diems	person-days	0	2,200.00	0.00
	2.		Domestic Air Travel	provisional sum	0	0.00	0.00
	3.		Domestic Land Transportation	veh-months	0	65,000.00	0.00
	4.		Communication	months	0	9,000.00	0.00
	5.		Office/Engineering Supplies				
		a.	Reproduction of Reports	provisional sum	1	24,050.00	24,050.00
		b.	Office Supplies for the Study Team	months	1	5,466.50	5,466.50
		c.	Office Supplies for the Implementing Office	provisional sum	1	35,000.00	35,000.00
	6.		Miscellaneous Expenses				
		a.	Meeting (Monthly Meetings, FDGs, etc)	Provisional sum	1	6,664.00	6,664.00
						Sub-total Reimbursable Items	**71,180.50**

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SURVEYS

	Surveys	Unit	Quantity	Unit Cost	Amount
2.	Topographic Survey				
a.	Roads	km	3.0	25,000.00	74,250.00
b.	Bridge	bridges	2	25,000.00	50,000.00
3.	Geotechnical Investigation Survey				
a.	Soil boring test with SPT (30m) including laboratory test	boreholes	5	49,000.00	245,000.00
b.	Auger boring test (1.5m) including laboratory	testpits	14	20,000.00	280,000.00
c.	Mobilization/Demobilization	projects	1	7,500.00	7,500.00
				Sub-total Surveys	**656,750.00**

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