Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
SORSOGON 1ST DISTRICT ENGINEERING OFFICE
Guinlajon, Sorsogon City

BAGONG PILIPINAS

TERMS OF REFERENCE

CONSULTING SERVICES FOR THE GEOTECHNICAL AND GEOLOGICAL SURVEYS/INVESTIGATIONS IN SORSOGON FIRST DISTRICT ENGINEERING OFFICE

I. INTRODUCTION

A. PROJECT BACKGROUND

The Government of the Philippines (GOP), through the Department of Public Works and Highways (DPWH), Sorsogon 1st DEO has prepared these guidelines to assist the consulting services in the planning cost estimating and reporting of geotechnical and geological survey investigation of four (4) bridges and six (6) building project sites for Sorsogon First District Engineering Office implementation. The specific projects will require the services of the Consultant that will conduct detailed geotechnical and geological investigation which includes field and laboratory testing to determine the surface and subsurface condition of bridge and flood control project sites identified by the DPWH.

B. OBJECTIVES

The main objective of the consulting services is to have a comprehensive geological and geotechnical report of the listed projects. The output of this study/investigations will serve as basis for the preparation of detailed engineering design.

C. PROJECT SCOPE

The proposed projects are listed in Table 1: List of proposed bridges, and building projects.

Table 1: List of Proposed Bridges and Building Projects.

PROJECT NAME/LOCATION	DEPTH OF EACH BOREHOLE (m)	No. of Boreholes
BRIDGE PROJECTS		
Construction of Pinakulan Bride at Talisay, Sorsogon City, Sorsogon	30	2
Construction of Bridge, Brgy. Cawit to Brgy. Central, Casiguran, Sorsogon	30	2
Construction of Bridge, Brgy. Mayon to Brgy. Miluya, Castilla, Sorsogon	30	2
Construction of Road, Cambulaga, Penafrancia-Pamurayan Gimaluto (including two bridges), Sorsogon City, Sorsogon	30	2
BUILDING PROJECTS		
Construction of Multi-Purpose Building, Pilar Community College Building, Pilar, Sorsogon	30	1
Construction of Evacuation Center, Brgy. Banuang Gurang, Donsol, Sorsogon	30	1
Construction of Multi-Purpose Building, Sawanga, Sorsogon City, Sorsogon	30	1
Construction Sorsogon Provincial Hospital, Sorsogon City	30	1
Construction of Donsol District Hospital, Donsol, Sorsogon	30	1

PROJECT NAME/LOCATION	DEPTH OF EACH BOREHOLE (m)	No. of Boreholes
Construction of Multi-Purpose Building (Planning and Design Building - Sorsogon 1st DEO), Sorsogon City, Sorsogon	30	1

II. SCOPE OF SERVICES

A. GENERAL

The scope of consulting services shall involve the conduct of the subsoil investigation and preparation of the Geological/Geotechnical Report and is the subject of this Terms of Reference (TOR).

The Consultant's scope of work shall cover but not necessarily be limited to the items listed hereunder.

The Consultant shall (a) perform field reconnaissance of the study area with regards to existing situation of the project site and relevant site situation under study, (b) coordinate with the DPWH Sorsogon 1st DEO – Planning and Design Section (PDS) through Chief prior to the conduct of geotechnical and geological surveys and investigations at the specified sites, (c) identify areas with geological problems and difficulties, and water bearing stratum causing subsurface discharge, which could affect the stability of the structure, and (d) based on the result of item (a), (b) and (c), provide detailed report of the field activity and recommend technical solutions with appropriate technical justification, taking into considerations the proposed structure on the site.

The consulting services shall be performed in accordance with accepted professional standards utilizing sound engineering evaluation practices and environmental and social requirements. The Consultant shall adopt the guidelines stated in the DPWH Design Guidelines, Criteria and Standards (DGCS) latest edition and abide with relevant issuances and references of the Department in the conduct of geological and geotechnical investigation. The Consultant's scope of services (Section II. SCOPE OF SERVICES) shall cover what is stated in the general scope (A. GENERAL), and shall not necessarily be limited to the items listed in Section B. THE SERVICES, of the TOR.

B. THE SERVICES

In General, the Consultant shall conduct the following:

1. Geological Survey and Investigation, consisting of, but not limited to the following:

a. Location map of project with geographic/grid coordinates system;
b. Geohazard Assessment Report;
c. Discussion on Geology of the Project Area;
d. Discussion on Seismicity of the Project Area
   - Active Fault Map (Determine the 3 nearest active faults and its distance from the site)
   - Length of Active Fault (based on PHIVOLCS Map)
   - Ground Acceleration Maps Probabilistic Hazard Analysis (PSHA) Maps from Bridge Seismic Design Specifications (BSDS) 2013 or Direct Seismic Hazard (Peak Ground Acceleration, Long and Short Spectral Acceleration – 1,000-year return period)
   - Seismic Factors (Ground Type, PGA Coefficient at Period of 1.0 sec (Sl);
   - Approach (DSHA) for Building Projects using NSCP 2015 - Seismic Source Type,

- Near-source factor (Na, Nv), Seismic Response Coefficient (Ca, Cv)

e. Discussion on Geomorphology, Topography, Climate and Vegetation of the Project Area
   - Geomorphologic Map
   - Topographic Map
   - Climate Map;

f. Discussion on Geohazard
   - Volcanic Hazard Maps
   - Rainfall-induced landslide Map
   - Earthquake-induced landslide Map
   - Flood Hazard Maps and Discussion on Fluvial Hazards
   - Liquefaction Hazard Map
   - Tsunami, Seiches and Storm Surge Hazard Maps
   - Mining Tenement Maps (Locations of Previous Open Pits, Underground Portals, etc.);

g. Discussion on Problematic Soils
   - Expansive Soils
   - Fills
   - Highly Compressible Soils
   - Contaminated Soil
   - Collapsible Soil;

h. Liquefaction Assessment
   - Liquefaction Assessment of Soil Layers based on the results of Geotechnical Investigation (as per BSDS 2013 and DGCS Volume 2A)
   - Preliminary Screening Analysis (based on grain size analysis & Atterberg limit test)
   - Calculation of Cyclic Resistance Ratio and Cyclic Stress Ratio (based on geotechnical parameters of soil);

i. Rock Mass Classification
   - Rock Mass Rating (RMR);

j. Geologic map (1:50,000 or more detailed) showing soils/rock formation, geologic structures such as faults, beddings, folds, fractures, etc., including orientation (e.g. strike and dip), etc.;

k. Geologic hazards (volcanic/geothermal activity, earthquake, landslides and slope movement, river action and flooding, marine action, soil erosion, waste disposal, groundwater pollution, mining surface subsidence and sinkholes;

l. Geological map of the existing ground formation(s) along the project site specifically at slope disaster areas by conducting field investigation;

m. Geological survey for improvement/rehabilitation of project structure necessary for detailed engineering;

n. Review/study the geological conditions in the site and, on the basis of geotechnical investigations and design criteria to permit proper foundation design for flood control structures with particular attention to slope stability problems in mountainous regions where side hill cuts and high fills way be encountered;

o. Geological Structures, especially active faults within the cut slope and/or proximal to the area, should be delineated;

p. Detailed mapping of in-situ slope showing the orientation (strike and dip) of bedding, faults, folds, fractures, other geologic structures, etc;

q. Identification and classification of slope failure (rock slide, rock fall, creep, circular failure, etc.). The potential slope failure surface must be delineated if visible in the slope.

2. Geotechnical Investigation, consisting of, but not limited to the following:

2.1 Reports

a. Auger boreholes/test pit/borehole location plan and soil profile to the proposed project including reference information such as station, coordinates (PRS92), reference elevation of hole, MSL, etc.;
b. Discussion on results of Geotechnical Investigation and Laboratory Testing:
c. Duly signed results of the test conducted;
d. Evaluation of results;
e. Recommendation (foundation type and required geotechnical parameters for design), Type of Recommended Foundation should be drawn adjacent to boring log with SPT Graph;
f. Analysis for Liquefaction Potential during earthquake and consolidation due to soft ground;
g. Ground Improvement Technique(s), if necessary;
h. Geotechnical Parameters;
i. Summary of Test Results from Field and Laboratory Tests;
j. Global Stability Analysis (Bridge Abutment and Slope Protection);
k. Allowable Bearing Capacity for Bridge and Building Projects (Spread Footing Foundation);
l. Allowable Bearing Capacity for Bridge and Building Projects (Deep and/or Shallow Foundation);
m. Evaluation and Recommendation;
n. Geotechnical report duly signed by the geotechnical engineer;
o. Geotagged field photographs and sample photographs (related to geologic/geotechnical investigation such as project location, boring operation/sampling, samples in core boxes, etc.);
p. Others (i.e. soil improvement, presence of boulders and other obstructions, etc.)

2.2 Boring Logs

a. Borehole number;
b. Project Name, address of project, client name/implementing office;
c. Date of start and completion of boring;
d. Station, coordinates and elevation of borehole;
e. Type of drilling equipment and casing information;
f. Thickness of soil layer;
g. Standard penetration test (SPT);
h. Sampling and coring information;
i. Description of materials penetrated (i.e. color, shape, etc.);
j. Classification of soil in accordance with AASHTO M145 and USCS;
k. Sample recovery and RQD for rock strata;
l. Indicated depth to groundwater or seepage zones;
m. Elevation of the top and bottom of the hole and the top of rock formation in meters above sea level (masl)

2.3 Laboratory Soil Test

2.3.1 Bridge Projects

a. Specific Gravity
b. Natural Moisture Content (NMC)
c. Combined Sieve and Hydrometer
d. Liquid Limit (LL)
e. Plastic Limit (PL)
f. Plasticity Index (PI)
g. Shrinkage Limit (SL)
h. Unit Weight
i. Unconfined Compression Test
j. Triaxial Compression Test
k. Consolidation Test

2.3.2 Building Projects

a. Specific Gravity
b. Natural Moisture Content (NMC)
c. Combined Sieve and Hydrometer
d. Liquid Limit (LL)
e. Plastic Limit (PL)
f. Plasticity Index (PI)
g. Shrinkage Limit (SL)
h. Unit Weight
i. Unconfined Compression Test
j. Triaxial Compression Test
k. Consolidation Test

2.4 Geological/Geotechnical Plan

a. North arrow
b. Name of project/location
c. Borehole location plan
d. Borehole designation
e. Borehole log reflected according to ground elevation
f. Type of recommended foundation drawn adjacent to boring logs with SPT graph
g. Groundwater table elevation
h. Name of waterway and direction of flow (for bridge and water projects)
i. Appropriate signatories in the title block

Table 2: GEOTECHNICAL REQUIREMENTS FOR DESIGN		
BORING REQUIREMENTS FOR EACH PROJECT CATEGORY		
Type of Project	**Spacing/Frequency**	**Depth**
Bridge Projects	• For piers or abutment less than 30 meters wide, boring shall be one (1) each on both abutments, and one (1) per pier. • For piers or abutment greater than 30 meters wide, provide a minimum of two (2) boreholes each.	• 30.00 meters minimum in ordinary soil, or up to 3m into sound rock if rock is encountered above that depth. • In case bearing layer is not yet encountered beyond 30 meters, boring shall continue until preferred layer is encountered and/or upon the instruction of the geotechnical engineer.
Building Projects (One (1) Storey Building with Five Meters Height or Less	• Minimum required spacing shall adopt Table 303-1 of the National Structural Code of the Philippines (NSCP) 2015 Edition and/or its latest edition: - For footprint area less than or equal to 50 sqm, minimum required number of borehole shall be 1 - For footprint area greater than but less than or equal to 500 sqm. minimum required number of boreholes shall be 2. - For footprint area greater than 500 sqm., minimum required number of borehole shall be 2 + A/1000 where A is the footprint area.	• Plate load test or 1.50 meters of test pitting below the natural ground line.

Table 2: GEOTECHNICAL REQUIREMENTS FOR DESIGN		
BORING REQUIREMENTS FOR EACH PROJECT CATEGORY		
Type of Project	**Spacing/Frequency**	**Depth**
Building Projects Two (2) Storey Building and Above	• Minimum required spacing shall adopt Table 303-1 of the National Structural Code of the Philippines (NSCP) 2015 Edition and/or its latest edition: - For footprint area less than or equal to 50 sqm, minimum required number of borehole shall be 1 - For footprint area greater than but less than or equal to 500 sqm. minimum required number of boreholes shall be 2. • For footprint area greater than 500 sqm., minimum required number of borehole shall be 2 + A/1000 where A is the footprint area.	• Minimum depth of borehole shall be thirty (30) meters of five (5) meters into bearing later, whichever comes first.

Disturbed and undisturbed soil and rock samples obtained shall be subjected to physical and mechanical tests and soil mechanics analysis to include shear strength tests necessary for slope stability analysis. Geotechnical investigation may be carried out using inclinometers and piezometers, if necessary, at rock formation and mountainous sections and at areas where ground movement and/or settlement and subsidence, have been observed.
All geological and geotechnical investigation results and reports shall be subject for review and evaluation for conformity with the DPWH Design Guidelines, Criteria and Standard (latest edition) and Department Order 75 Series of 2024: "*Guidelines for the Conduct of Geotechnical Investigation for all DPWH Infrastructure*".

II. IMPLEMENTATION
A. STAFFING

3. Preparation and Submission of Reports/Deliverables

3.1 Monthly Progress Report (MPR)

During the period of the contract, the Consultant shall prepare Progress Report (PR) in a form to be approved by the DPWH qualified representative and submit them to DPWH Sorsogon 1st DEO-PDS.

The MPR shall consist and/or discuss, but shall not be limited to the following:

a. Overall summary of accomplishment
b. Core drilling progress
c. Laboratory tests accomplishment
d. Schedule of work
e. List of equipment used
f. Detailed progress of charts

3.2 Partial on Investigation Results

The Consultant is required to submit partial reports consisting of completed results of boring in the form of a final boring log and soil profile for immediate use in the preliminary design work.

3.3 Draft of Final Report

The Consultant is required to submit a draft of the final report consisting all the data, results and discussion in format and guided by Section 3.4 of this TOR. Submitted draft of the report will be evaluated by Planning and Design Section Personnel for its completeness before requiring the Consultant to submit final report and electronic copy.

3.4 Final Report

The Consultant shall prepare the final report in 1 original bound copy, 2 bound machine copies and an electronic/scanned copy in DVD (all colored with signatures) after the evaluation of the draft of final report done by PDS Personnel. The final report shall include, but not be limited to the following:

a. Field Investigation and Methodology
b. Borehole Drilling and Sampling
c. Laboratory Testing
d. Regional Geology
e. Vicinity Map in scale of 1:50,000
f. Final Boring Logs (BL), see below
g. Final Laboratory Test Results (FLTR), see below
h. Borehole Location Plan in scale 1:250
i. Soil Profile along structures showing boring/drilling logs
j. Soil Liquefaction Analysis with Settlement Computation (Lateral and Vertical)
k. Soil Bearing Capacity
l. Recommendations if called for, such as type of proposed countermeasure/ structures to address geological/geotechnical problems and foundation type.
m. Geotagged photographs of in-site slope condition with delineation of the identified geologic structures.
n. Other relevant data, i.e. Geotagged photograph of sampling, etc.

3.5 Other data to be submitted

a. Final Boring Logs (BL)

- Project name, Address of Project, Client Name/ Implementing Office
- Date of Start and Completion of Boring
- Elevation of the Top and Bottom of the Hole and Top of Rock Formation, if encountered
- Geographic coordinates of the Hole (Northing and Easting, PRS92)
- Job, boring hole number, date, time, boring/drilling foreman and supervisor
- Weather condition
- Depth condition
- Depth of groundwater table
- Method of penetration
- Description of soil strata encountered
- Depth of soil boundaries
- Size, type and depth of samples and sample number
- Type and depth of situ test
- Standard Penetration Tests Resistance, "N" values
- Depth of Boring
- Other relevant information such as RQD, percent core recovery, etc.

b. Photographs

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

- Equipment used
- Core drilling operation
- Water level measurements
- Performance of SPT sampling
- All core and SPT samples placed in core boxes with depth marking
- Date photographs were taken
- Location and/or station

c. The sub-surface soil exploration works including laboratory tests shall be completed within time frame upon receipt of the Notice to Proceed (NTP).

d. Laboratory soil tests

- Mechanical Sieve Analysis
- Specific Gravity
- Atterberg Limits
- Natural Moisture Content (NMC)
- Dry Unit Weight

e. Geological/Geotechnical Plan

- North Arrow
- Name of Project/Location

- Borehole Designation
- Borehole Log Reflected according to ground elevation
- Type of Recommended Foundation Drawn Adjacent to Boring Log with SPT Graph
- Groundwater table elevation
- Name of Waterway and direction of flow (for bridges and water projects)
- Appropriate signatories in the title block.

B. SUB-CONTRACTING

The consultant may sub-contract portions of the Consulting Services to an extent as may be approved by the Procuring Entity, provided that the Consultant shall directly undertake, using its own personnel and resources, not less than eighty percent (80%) of the contract works in terms of cost.

C. DURATION OF CONSULTING

The Consultant's contract period for undertaking the Geotechnical and Geological Survey shall not be more than twenty-three (23) calendar days and the Consultant shall commence work within seven (7) days after receipt of Notice to Proceed (NTP).

D. SCHEDULES

Indicative schedule of activities and key personnel:

ACTIVITIES	WEEKS			
	1	2	3	4
Geologic & Geohazard Mapping				
Drilling				
Laboratory				
Reports				

KEY STAFF	WEEKS			
	1	2	3	4
Geotechnical Engineer				
Geologist				
Civil Engineer				

E. MANPOWER REQUIREMENTS

The Consultants shall be composed of qualified staff with experience in the conduct of geological and geotechnical investigation.

Position/ Key Staff	No. of Staff	Job Description/ Responsibility	Required Qualifications
Geotechnical Engineer	1	• Study and determination of items and method of soil investigation and laboratory test • Perform necessary subsoil investigations on representative sections of the road with samples to be taken at suitable intervals. • Investigate the physical properties of materials to facilitate the design of structures	• BS in Civil Engineering; Doctoral or MS in related field in an added advantage; • Duly licensed/registered civil engineer; • At least 5-year experience on soil, sub-surface and geotechnical survey and study of roads, bridges and related structures.
Geologist	1	• Collection and evaluation of geological information on the project sites. • Investigate and classification of slope failure type • Perform Rock Mass Rating (RMR)	• BS in Geology or Geological Engineering; Doctoral or MS related to Engineering Geology or related field • Duly licensed/registered Geologist • At least five (5) years of experience in structural geology, geohazard mapping particularly in landslide hazard assessment
Civil Engineer	2	• Oversee the progress of works • Supervision of field staff and the methods of works • Assist the Geotechnical Engineer in the collection of necessary data and information, in carrying out detailed soil investigations • along the identified borehole locations	• BS in Civil Engineering; Doctoral or MS in related field in an added advantage; • Duly licensed/registered civil engineer; • At least 3-year experience on soil, sub-surface and geotechnical survey and study of roads, bridges and related structures;

F. ASSISTANCE TO BE PROVIDED BY THE CLIENT

In connection with the task of the Consultant that require inputs and assistance from other government agencies as well as NGO's, members of the Congress and officials of the regional/provincial branches on national government agencies, the DPWH shall ensure that the Consultant has access to all relevant information necessary to the performance of the above services. The Consultant is expected to provide office space and equipment and all other resources necessary for completing the services.

G. DESIGN REVIEW BY THE PLANNING & DESIGN SECTION OF THE DPWH SORSOGON 1ST DEO.

Prepared by:

DORIELYN B. DICHOSO
Engineer II

Noted by:

ANALYN E. JACOB
Chief – Planning and Design Section

Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
SORSOGON 1ST DISTRICT ENGINEERING OFFICE
Guinlajon, Sorsogon City

Consultancy Services for Sub-Soil Investigation FY 2025 Bridge and Building Projects, Sorsogon 1st DEO

APPROVED BUDGET FOR THE CONTRACT (ABC)

Summary of Cost

No.	Item	Cost
I	Remuneration Costs	248,705.00
II	Reimbursable Costs	143,605.00
III	Miscellaneous Expenses	1,655,940.00
IV	Sub-Total *(I + II + III)*	2,048,250.00
V	VAT (12% of Remuneration)	29,844.60
VI	Contingency (5% of IV)	102,412.50
VII	**Grand Total *(IV + V + VI)***	**2,180,507.10**

Prepared by:

DORIELYN B. DICHOSO
Engineer II

Checked by:

JOSEPH D. DIAZ
Engineer II

Submitted by:

ANALYN E. JACOB
Chief, Planning and Design Section

Recommending Approval:

NIDA D. RELLAMA
OIC - Assistant District Engineer

Approved by:

PRISCILLA B. JEBULAN
District Engineer

Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
SORSOGON 1ST DISTRICT ENGINEERING OFFICE
Guinlajon, Sorsogon City

Consultancy Services for Sub-Soil Investigation FY 2025 Bridge and Building Projects, Sorsogon 1st DEO

BREAKDOWN OF COST ESTIMATES

I. Breakdown of Remuneration Costs

	Positions	No. of Personnel	Man-Days	Billing Rate (per day)	Amount
Key Staff					
1.	Geotechnical Engineer	1.00	23.00		
				Sub-Total:	
Administrative and Support Staff					
1.	Civil Engineer	2.00	16.00		
2.	Geologist	1.00	23.00		
3.	Field Technician	2.00	16.00		
4.	Skilled Laborer	2.00	16.00		
5.	Common Laborer	2.00	16.00		
6.	Laboratory Technician	4.00	16.00		
7.	Secretary	1.00	23.00		
				Sub-Total:	
				Total (I)	

Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
SORSOGON 1ST DISTRICT ENGINEERING OFFICE
Guinlajon, Sorsogon City

Consultancy Services for Sub-Soil Investigation FY 2025 Bridge and Building Projects, Sorsogon 1st DEO

BREAKDOWN OF COST ESTIMATES

II. Breakdown of Reimbursable Cost

A. Based on Agreed Fixed Rates					
No.	**Description**	**Unit**	**Quantity**	**Unit Price**	**Unit Price**
1.	Per Diems[a]	person-day	51.00		
				Sub-Total *(II.A)*	

B. Based on Agreed Fixed Rates					
No.	**Description**	**Unit**	**Quantity**	**Unit Price**	**Unit Price**
1.	Domestic Transportation[a]	roundtrip	3.00		
2.	Communication[a]	project	1.00		
3.	Office/Engineering Supplies	month	0.77		
4.	Office Rental	month	0.77		
5.	Equipment Rental/Purchase	veh-month	1.20		
				Sub-Total *(II.B)*	

Sub-Total *(II)*	

III. Miscellaneous Expenses

A. Activity Surveys/ Investigations/ Etc.					
No.	**Description**	**Unit**	**Quantity**	**Unit Price**	**Unit Price**
1.	Geotechnical Survey[b]				
	a. Mobilization/Demobilization	project	1.00		
	b. Soil Boring Test with SPT	Borehole (30m)	14.00		
	d. Miscellaneous	lump sum	1.00		
				Sub-Total *(III.A)*	

Sub-Total *(III)*	

[a] See Annex A

[b] See Annex B

Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
SORSOGON 1ST DISTRICT ENGINEERING OFFICE
Guinlajon, Sorsogon City

Consultancy Services for Sub-Soil Investigation FY 2025 Bridge and Building Projects, Sorsogon 1st DEO

Annex A

BREAKDOWN OF COST ESTIMATES

A. Breakdown of Per Diems

Per Diem and Domestic Transportation					
Positions		No. of Persons	No. of Days/Travel	No. of Roundtrips	No. of Days for Per Diem
Key Staff					
1.	Geotechnical Engineer	1.00	3.00	1.00	3.00
Support Staff					
1.	Civil Engineer	2.00	16.00	1.00	32.00
2.	Geologist	1.00	16.00	1.00	16.00
				Total No. of Roundtrips:	**3.00**
				Total No. Days for Per Diem:	**51.00**

Communication (Printing and Reproduction of Reports, Documents, etc.)					
Reports to be Submitted		No. of Pages	No. of Copies	Printing Cost	Binding Cost
1.	Progress Report	20.00	1.00		
2.	Draft Report	498.00	1.00		
3.	Final Report	498.00	3.00		
	Sub-Total:				
	Total Cost (PhP)				

Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
SORSOGON 1ST DISTRICT ENGINEERING OFFICE
Guinlajon, Sorsogon City

Consultancy Services for Sub-Soil Investigation FY 2025 Bridge and Building Projects, Sorsogon 1st DEO

Annex B

BREAKDOWN OF COST ESTIMATES

III. Miscellaneous Expenses

2. Geotechnical Investigation

Description	Quantity	Unit	Unit Cost	Amount
A. Mobilization	2.00	area		
B. Demobilization	2.00	area		
			Subtotal	
C. Soil Boring Test with SPT Including Laboratory Test for 30 meter Borehole				
a. Drilling and Sampling with SPT				
1. Drilling thru Ordinary Soil	27.00	meters		
2. Drill thru Rock	3.00	meters		
3. Standard Penetration Test	18.00	samples		
b. Laboratory Test				
1. Specific Gravity	18.00	samples		
2. Natural Moisture Content	18.00	samples		
3. Combined Sieve and Hydrometer	18.00	samples		
4. Atterberg Limits (LL, PL, SL)	18.00	samples		
5. Unit Weight	18.00	samples		
6. Unconfined Compression Test	1.00	sample		
7. Triaxial Compression Test	1.00	sample		
8. Consolidation Test	1.00	sample		
			Unit Cost (30m BH)	
D Miscellaneous Expenses (During Operation)				
1. Diesel Oil for Drilling Machine/Water Pump	32.00	days		
2. Diesel/Gasoline for Service Vehicle	36.00	days		
3. Water Supply Source	32.00	days		
4. Plastic bags, Pentel Pen, etc.	2.00	lot		
			Subtotal	