TERMS OF REFERENCE (ToR)

Geotechnical Investigation for Proposed 4-Storey Office Building

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Project Site Area: 0.17 hectares
Location: Auki Town, Malaita Province
Date: 8/10/2025
Client: Ministry of Lands, Housing & Survey

LANDS
MINISTRY OF LANDS, HOUSING & SURVEY

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1. Background

The Ministry of Lands, Housing & Survey intends to develop a 4-storey office building on a 0.17-hectare site located at Auki town, Malaita Province. The development aims to provide modern, safe, and resilient office accommodation that supports improved public service delivery and economic activities within the area.

Given the geologically diverse and seismically active nature of the Solomon Islands, it is essential to undertake a comprehensive geotechnical investigation to determine the engineering properties of the subsurface materials and groundwater conditions at the proposed site.

The outcomes of this investigation will provide the necessary parameters for structural design, foundation selection, and construction planning to ensure the safety, stability, and longevity of the proposed building.

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2. Objectives

The objectives of this geotechnical investigation are to:

1. Determine the subsurface soil and geological conditions at the proposed development site.
2. Assess the bearing capacity and settlement characteristics of the underlying soils and rock strata.
3. Identify groundwater levels and potential seasonal fluctuations.

4. Evaluate potential geotechnical hazards, including soil instability, slope movement, liquefaction, or expansive soils.
5. Provide engineering recommendations for the design of foundations, retaining structures, and site preparation works.

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3. Scope of Work

The Consultant shall perform the following tasks:

3.1 Desk Study

- Review existing geological and topographical maps of the area.
- Examine any previous geotechnical or structural reports available for nearby developments.
- Review seismicity data, flood potential, and other relevant environmental factors.
- Conduct a preliminary site appraisal to assess general accessibility and surface conditions.

3.2 Field Investigation

- Conduct site reconnaissance to record topography, drainage, vegetation, and existing structures.
- Undertake borehole drilling (minimum of 3 to 5 boreholes) to depths sufficient to reach competent founding material (anticipated 10–20 metres).
- Carry out Standard Penetration Tests (SPT) at regular intervals during drilling.
- Collect disturbed and undisturbed soil samples for laboratory testing.
- Record groundwater levels during drilling and upon completion of boreholes.
- If necessary, conduct test pits or dynamic cone penetration tests (DCPT) for shallow soil profiling.

3.3 Laboratory Testing

All laboratory testing shall be undertaken in accordance with recognized international standards (e.g., ASTM, BS, or AS standards). Testing shall include, but not be limited to:

- Moisture content
- Atterberg limits (plasticity index)
- Particle size distribution
- Bulk density and dry density

- Shear strength parameters (direct shear or triaxial tests)
- Consolidation or settlement tests
- Soil classification (Unified Soil Classification System)

If required, chemical tests (e.g., for sulphates, chlorides, or pH) shall be included to assess the aggressiveness of soil to concrete and steel.

3.4 Analysis and Interpretation

The consultant shall:

- Classify and interpret soil and rock strata.
- Determine allowable bearing capacities and anticipated settlements.
- Evaluate potential geotechnical risks such as slope instability, liquefaction, and erosion.
- Provide recommendations for:
    - Type and depth of foundations (e.g., pad, raft, or pile foundations)
    - Excavation support and retaining walls
    - Ground improvement measures (if required)
    - Earthwork and site preparation requirements

3.5 Reporting

Prepare and submit a detailed **Geotechnical Investigation Report** containing:

- Executive summary of findings and recommendations.
- Site description and location map.
- Summary of field and laboratory methods.
- Borehole and test pit logs.
- Groundwater observations.
- Laboratory test results.
- Engineering analysis and interpretation.
- Design recommendations and foundation options.
- Construction considerations and geotechnical risk assessment.

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4. Standards and References

All investigation and reporting shall comply with relevant standards, including:

- AS 1726:2017 – Geotechnical Site Investigations
- AS 2159:2009 – Piling: Design and Installation
- AS 2870:2011 – Residential Slabs and Footings (as applicable)
- ASTM International Soil Testing Standards
- British Standard BS 5930 – Code of Practice for Site Investigations
- Solomon Islands National Building Code (SIBC) and any related MID / MLHS guidelines

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5. Deliverables

Deliverable	Description	Format	Timeline
Inception Report	Methodology, site plan, schedule, and equipment list	1 soft + 1 hard copy	Week 1
Field Logs	Borehole logs and sampling data	Appendix to main report	Week 3
Draft Geotechnical Report	Preliminary findings and recommendations	1 soft copy	Week 5
Final Geotechnical Report	Final report with signed certification	3 hard copies + 1 digital (PDF)	Week 6

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6. Duration and Schedule

The total duration for the investigation is estimated at **6 weeks**, as follows:

Phase	Duration
Desk Study and Mobilization	1 week
Field Investigation	2 weeks
Laboratory Testing	2 weeks
Analysis and Reporting	1 week

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7. Consultant Requirements

The consultant shall:

- Be a registered engineering or geotechnical consulting firm operating in the Solomon Islands or regionally (with relevant accreditation).
- Demonstrate experience in similar multi-storey building investigations within tropical and coastal environments.
- Provide a qualified geotechnical engineer to lead the investigation.
- Ensure all field operations comply with Workplace Health and Safety (WHS) Regulations and environmental safeguards.

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8. Client's Responsibilities

The Client will:

- Provide access to the site and necessary project documentation.
- Facilitate local permits and community notifications (if applicable).
- Assist with coordination with provincial authorities or landowners.
- Provide any existing design or architectural drawings.

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9. Reporting and Communication

All correspondence and deliverables shall be addressed to:

Contact Person: Buddley Ronnie
Position: Deputy Secretary Technical
Organization: Ministry of Lands, Housing and Survey
Postal Address: P.o Box G38
Email: BRonnie@mlhs.gov.sb
Telephone: 21512/21511

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10. Budget and Payment Schedule

Payment will be made based on satisfactory completion of each milestone:

Milestone	Deliverable	Payment (%)
Contract Signing & Mobilization	Inception Report	20%
Completion of Fieldwork	Borehole and test logs submitted	40%

Submission of Draft Report	For Client Review	20%
Submission and Acceptance of Final Report	Approved by Client	20%

11. Confidentiality and Ownership

All data, samples, drawings, and reports generated under this contract remain the property of the Client. The Consultant shall not disclose or reproduce any information without prior written approval.