Government of the People's Republic of Bangladesh
Local Government Engineering Department

Terms of Reference
For
Sub-soil Testing Work for Bridge

Name of Work:.....
Upazila: .....District:.....

The sub-soil investigation firm shall have good reputation. The firm shall have its own soil testing laboratory and a Geotechnical engineer (Graduate Civil Engineer from recognized institution).

The Sub-soil Investigation work shall be carried out following Standard Practices as stated below:

1. Prepare a work-plan showing the time schedule for conducting sub-soil investigation and submit the same to the Project Director, concerned Executive Engineer LGED.

2. Mobilize and start sub-soil investigation work with prior written information to XEN and UE's

3. The sub-soil investigation equipment shall be checked by UE's and LT's [dimension of Shelby tubes & Auto release hammer etc. They also check the Liquid Limit of Bentonite Powder (LL>350) & the mix ratio (4%-6%) of Bentonite with water for preparation of Slurry.

4. The borehole layout plan should be shown in the Digital Topographical survey map in x, y, z Co-ordinate. The 'z' co-ordinate shall be in respect to SOB/PWD BM.

5. Conduct sub-soil investigation work using 100mm exploratory boring for SPT test and soil sample collection.

6. For single span Bridge at least two nos. and for three and five span Bridge at least four nos. bore-hole, for Large Bridge (L>100m) at each support of the bridge (Pier, abutment) one bore hole should be made.

7. Take at least 3 (Three) digital Photo graph of each Boring operation in presence of LGED's representatives and the firm's Engineer (Graduate Civil Engineer from recognized institution).

8. For each bore-hole, minimum depth of boring shall be 20m. if poor quality soil encountered (say SPT value<20) the depth shall be extended upto 30m or more.

9. Normally SPT is taken @1.5m interval, but SPT must be taken @ 1m interval upto top 6m depth.

10. If clayey soil encountered at any depth during boring, undisturbed soil samples must be collected with the help of shelby tubes.

11. Following laboratory test must be carried out:
    i) Unconfined compression for cohesive soil (C)
    ii) Direct shear (Ø)
    iii) Grain size analysis, Natural Moisture Content, Liquid Limit, and Plastic Limit

12. Submit draft **Soil Test Report** (2 copies) with all necessary data, information, bore log, photograph, analysis, comments with result mentioning soil bearing capacity. Bore log shall Contain N-Value, soil type, Water table Level (RL). EGL (SOB/PWD BM) of Borehole Top and Date & time of commencement & completion of each borehole shall be mentioned clearly.

13. A power point presentation by the firm may be held at LGED Design unit for review and comment.

14. Final soil test report (4 copies) including the comments of LGED's design unit shall be submitted within 10(ten) days after presentation.