

Government of the People's Republic of Bangladesh  
Local Government Engineering Department  
Agargaon, Sher-e-Bangla Nagar, Dhaka-1207.  
**Terms of Reference**  
**for**  
**Digital Topographical Survey for Bridge**

Name of the Project: .....

Name of Work: .....

Upazila: ..... District: .....

The detailed survey to be carried out using high precision instrument i.e. Total station, Auto Level machine, GPS etc.

**Survey report shall include following information:**

1. A north direction shall be prominently shown.
2. All the physical features, such as ponds, permanent structures, drains, hills, wells shall be shown at their exact locations.
3. (a) One river/ channel/ khal cross section to be exclusively taken along the center line of the proposed bridge alignment and other sections at distances of 0.5, 1, 2 and 4 times channel widths at upstream and at distances of 0.5, 1 and 2 times channel widths at downstream. Spot levels on river cross section to be taken at 3.0m intervals or as necessary.  
(b) The length of each cross section should cover the full channel width plus same length of left & right banks.
4. Road cross sections to be taken along approach road at both ends of the proposed bridge. Four road sections at each end of the bridge @25m interval shall be taken. Spot levels on road cross sections to be preferably taken at 1.0m interval.
5. Bank line survey of the channel shall be conducted by the following manner:
  - a. For less than 100m bridges, bank line survey of both sides shall be carried out minimum 300m towards upstream and downstream of the river course way.
  - b. For bridges of the proposed length 100-300m, the bank line survey of both side shall be carried out minimum 500m towards upstream and downstream of the river course way.
  - c. For bridges of the proposed length more than 300m, the bank line survey of both sides shall be carried out minimum 1km or as required towards upstream and downstream of the river course way.
6. All details within the area as instructed by the client to be surveyed which shall show summarized information about road alignment, side slope, bridges, homesteads, government/ non-government offices, Important or historic buildings or structures, tress, electrical installations markets, community center and other public places.
7. Sufficient spot levels to be taken at the rate of one per 16sqm area i/c river bank, road edges and embankment toes.
8. HFL to be provided reference to the PWD/SOB Bench Mark (BM).
9. All RLs to be taken with respect to SOB/PWD Bench mark available near by the bridge site and location of TBM to be clearly shown on the map.
10. All survey data to be submitted in an appropriate electronic form suitable for inputting in to design software being used by the Engineer.
11. Survey data shall also be submitted in print format **(with seal and signature)** with suitable text in a **suitable scale** as required by the Engineer, showing all the topographical features surveyed, spot levels with x, y, z, such that these can be used to establish Digital Terrain model (DTL).
12. Three permanent spots near each bridge site shall be marked with Global Co-ordinates (Longitude & Latitude) and Elevation.
13. For Bridge length more than 100m, the Topographical information provided in major Hydrological and Morphological Study report shall duly be incorporated in the Digital Topo Survey Map.
14. Digital photographs of daylight condition shall be provided which shall show, Canal/River/khal/approach/access road to the site and other important features around the site.
15. Co-ordinate (longitude & latitude) of both ends of all cross section of Roads and River/Canal/khal shall be shown on Topographic Survey Map. A satellite photograph (taken from Google earth) shall be provided and these co-ordinates shall also be identified properly on it.
16. Total job shall be carried out up to the satisfaction of the Design Unit, LGED.
17. In addition to the above requirements if any other special parameters are needed for a particular project site that shall be invariably incorporated.