

# **Terms of Reference (ToR) for Field Engineer**

## **1.0 Background of the assignment**

“Construction of Important Bridges on Rural Roads project” has been prepared in line with the strategy of the rural development projects for socio-economic development of local people. The proposed development works will provide easy and uninterrupted access to the project area, ensure marketing facility for agricultural products and boost rural economy by creating commercial and employment opportunities which in turn will directly benefit the poor and reduce poverty. With the above background, to create uninterrupted road network and to improve connectivity, this project has been prepared. So, the project would establish communication network and ensure socio-economic development without disturbing environment.

The Project has been approved by the ECNEC on 10-01-2017. It is a GoB funded project. Under this project, 130 important bridges will be constructed on rural roads at different location of our country. A portion of the project fund will be utilized to employ Individual Consultant Field Engineer.

## **2.0 Objective of Consultancy Services**

The objective of the consultancy service is to assist the Local Government Engineering Department (LGED) to construct important bridges on rural roads at different location of our country with specified technical standards, quality and time-frame.

## **3.0 General Scope of the Consultancy Services**

The overall scope of work of the consultant is to assist LGED in connection with the design, construction supervision and quality control for the construction of bridges. The service includes but not limited to the following activities:

- (i) Review of all relevant project documents including the hydrological and morphological study report, topographical survey report, sub-soil investigation report, detailed design and drawings, specifications etc and suggest modifications and changes as necessary;
- (ii) Assist the Project Director in overall project management, contract administration, progress monitoring etc.
- (iii) Assist for timely implementation of the project with effective guidance, supervision, and quality control.
- (iv) Check measurements and ensure quality of constructed work.
- (v) Assist in identification of implementation problems and provide solutions, co-ordination review project progress and report to the concerned execution authority.
- (vi) Advice PD on contractual matters and give assistance in the settlement of claims or disputes (if any arises), in accordance with the procedure laid down in the Conditions of Contract.

#### **4.0 Specific Scope of Work of Field Engineer**

The Field Engineer will work under the guidance of the Design and Supervision Engineer and the concerned Project Director. He will be responsible and accountable for his all activities to the Project Director and concerned Executive Engineer. The responsibilities of the Field Engineer would be, but not limited to, the following:-

- a) Review all project documents like digital topographical survey report, sub soil investigation report, land acquisition plan, Hydro-morphological study report, structural designs & drawings, cost estimates, Technical specification, Contract Agreements etc. and give specific comments to the Project Director and Design unit, LGED about Modification as necessary to improve sustainability of bridges.
- b) Review all project documents and give suggestions about modifications as necessary to improve sustainability of bridges.
- c) Prepare quality assurance plan and assist LGED to implement it.
- d) Provide physical layout of bridges and the river training work as per designs and drawings.
- e) Based on the construction sequence, prepare a Work Plan showing all activities as per work break down structure for the project and propose start and finish date and update the Work Plan every month and inform PD about the activities to be addressed to maintain progress or overcome delays when needed.
- f) Prepare overall supervision plan including step-by-step construction flow chart, supervision & monitoring method of each item of works, approval system, measurement methods, variation approval systems etc.
- g) Collect random samples of construction materials from the Contractor's stack yard and carryout necessary tests to ensure that materials collected by the contractor conform to the specification.
- h) Brief the contractor about the structural drawings and respond to their all queries. Advise the contractor about approach road alignment; fixing deck elevation and pier positions considering navigational requirement in respect of vertical and horizontal clearance etc as per BIWTA requirement. Check Bench Mark elevation with respect to PWD/SOB.
- i) Check sub-soil conditions during boring and casting of the cast-in-situ piles and compare with the design sub-soil report. In case of major deviation, he has to report to LGED/Designers for modification of designs.
- j) Monitor and remain present at the site during Pile Service Load Test (Static & Dynamic) and pile integrity test as carried out by the contractor, check settlements and report deviations if any.
- k) Supervise reinforcement fabrication, reinforcement/cable profile, formworks, scaffolding and concrete casting works maintaining quality of works.
- l) Supervise the post-tensioning and girder shifting works, advice as necessary based on the actual ground condition;
- m) Supervise the approach road and river training works. Before any earth filling work, take pre-work in presence of contractor, keep all records about geo-bag & block design in RTW.
- n) Assist the Executive Engineer, LGED/Project Director in contract administration, monitor progress with respect to the work plan submitted by the contractor, draft notices in case of major deviations; check time extension requirement of the bid security, performance security etc. as needed. Also inform the XEN/PD about the quarterly cash flow requirements;
- o) Check requirements for day works if reported by the Contractor, ensure proper recording of day works with assistance of the Assistant Field Engineer and the LGED representative. Check all variation claims, propose rates if necessary showing detailed breakdown of rates prior to execution of variation orders;
- p) Hold meetings at the site office as necessary; prepare minutes of meeting and circulate to all concerned.

- q) Keep records of all matters about contract administration, modifications and variations, including management meeting minutes for settlement of claims in future; review the As-Built Drawings as submitted by the contractor, suggest modification as necessary; ensure submission of an electronic version of the as-built drawing to PD for record.
- r) The consultant shall advise the Project Director on contractual matters in settling contractor's claims. He/she shall attend adjudication and arbitration sittings if necessary along with LGED representative in connection with the settlement of disputes.
- s) Assist the XEN/Project Director to implement EMP of bridge construction.
- t) Check measurements of constructed works submitted by the contractor and certify the same for payment.
- u) Prepare monthly progress report (quarterly) for the project including completion report (approved format) at the closure of the project.

## **5.0 Reporting Requirement**

**Monthly Progress Report:** The consultant shall submit a monthly progress report in brief and concise form using the approved format. The report will describe progress of activities planned for previous month along with plan for the next month. The report also state problems encountered, or problems anticipated together with steps taken or recommendations for their correction. The consultant will submit the report to the concerned UE and XEN LGED.

## **6.0 Data, Local service and Facilities to be provided by the Client :**

### **6.1 Study Reports, Traffic and Technical Data:**

LGED will provide the Consultant with all available data as and when required.

- All relevant studies so far done related to the project;
- Design manuals, standard designs of structures & other infrastructures, PPR-2008, LGED's Unit Rate Analysis and Unit Rates etc.
- Topographical survey map & sub-soil investigation report of proposed Bridge.
- Contract documents including design, drawing, price BOQ, technical specification etc.
- Maps of the country and location of the structures;
- Cost data on recent construction projects; and
- Any other report as available in LGED;

## **7.0 Working station & Working hour:**

The working Station of the consultant will be at the site of bridge construction work. He/she will be act a residential consultant. The working hour of the consultant will be same as the Govt. office. The field Engineer will be worked under the direct control of concerned XEN, LGED and the Project Director. He/she will not leave the working station prior approval of XEN, LGED and the Project Director. He/she shall have to take the responsibility of completing the project in time. The duration may be extended if necessary. If the consultant want to change the service for another project of LGED, he/she have to take prior approval from the PD during submission of RFA for another Project in LGED. Otherwise 2(two) months remuneration and reimbursable amount will be forfeited.

## **8.0 Qualification, Experience & Suitability :**

### **a) Educational Qualification:**

- Minimum B. Sc in Civil Engineering from any reputed University

**b) Experience & adequacy for the assignment :**

- At least 12 years of overall experiences, out of which 10 years relevant experience in supervision of bridge project.
- Knowledge and practical experience in supervision of PC girder bridge construction work.

**c) Suitability :**

- Computer skill ( MS word, Excel, Power point etc, MS Project),
- Training in relevant areas etc.

For outstanding Candidate, the experience criteria may be relaxed i.e the tenure of overall experience & relevant experience may be relaxed.