

Term of Reference (ToR)

Selection of Consultancy Firm for Design of Vehicle Inspection Centers with office building and Supervision of Site Readiness Work

Package No.: BRTA –S-1

1. Introduction

The Bangladesh Road Transport Authority (BRTA or “the Client”) is the sole authority under Road Transport and Highways Division (RTHD) of the Ministry of Road Transport and Bridges for regulating of motor vehicles and drivers of the country. There are about 6.6 million registered motor vehicles in the country – about 70% of which are 2 (two) wheelers, i.e. motorcycles/motorbikes. BRTA has 70 (seventy) field offices in all district and metropolitan areas for registration, issuance of fitness certificates, issuance of route permit, issuance of driving license, etc. However, BRTA does not have enough vehicle inspection centers (VICs) to ensure proper testing of motor vehicles to issue fitness certificates. VICs are essential for ensuring that vehicles operating on public roads meet established standards for safety, environmental protection, and mechanical reliability. VICs play a critical role in reducing air pollution by enforcing emission standards, identifying high-polluting vehicles, and ensuring engines are properly maintained. By testing vehicles for pollutants like hydrocarbons, carbon monoxide, and nitrogen oxides, these centers force necessary repairs, which can significantly decrease overall urban air pollution. In 1998, 5 (five) VICs were established in Dhaka (Mirpur and Ekuria), Chattogram, Khulna and Sylhet for this purpose. Notwithstanding, only the Mirpur VIC is currently in order, with two lanes and an operational capacity for inspecting only 100 (one hundred) motor vehicles daily, while the daily demand is for inspection from 800 to 1000 vehicles at that office. To address this demand, BRTA has expanded its capacity by adding 10 new lanes to the facility. Other inspection facilities are planned throughout the country, including new/replaced VICs at Mymensingh, Cumilla, Noakhali, Rangpur, Chattogram, Khulna, and Sylhet. By making these centers operational, BRTA will reduce the demand for vehicle inspection in Dhaka (Mirpur, Uttara, Ekuria, Purbachal).

Moreover, BRTA will increase the inspection frequency in Mymensingh, Cumilla, Noakhali, Rangpur, Chattogram, Khulna, and Sylhet, by establishing new automated vehicle inspection

facilities on priority basis.

Component 3 of the Bangladesh Environmental Sustainability and Transformation (BEST) Project will support BRTA to assess viable public–private partnership (PPP) modalities for development and operation of VICs to start effectively regulating vehicle emissions—a key and growing source of air pollution in Bangladesh. This component includes (a) design the required infrastructure and equipment for construction of the seven VICs located at Mymensingh, Cumilla, Noakhali, Rangpur, Chattogram, Khulna and Sylhet, (b) design, supervision and contract management for the construction of boundary wall and land development at Mymensingh, Cumilla, Noakhali, Rangpur and Sylhet, (c) technical assistance to improve BRTA’s capacity in vehicle inspection, and (d) project management at BRTA. Successful implementation of this component will help BRTA to develop and implement a national vehicle inspection program, to develop additional VICs beyond the BEST project and gradually remove unsafe and high GHG and pollution emission vehicles from its roads. The seven new VICs will help improve vehicle emission compliance in their service areas and contribute to air pollution control and reduce the economic costs of air pollution.

In this context, BRTA seeks to engage a qualified firm (hereafter referred to as the Consultant) for designing and supervising the execution of infrastructure (civil works and major equipment) contracts under Component 3 of the BEST Project.

2. Objectives of the Assignment

The objectives of the Consulting Services are to (i) design the required infrastructure and equipment for the VICs, preparation of the bidding documents in their entirety at the following locations:

1. Mymensingh 3 lane VIC.
2. Cumilla 3 lane VIC.
3. Noakhali 3 lane VIC.
4. Rangpur 2 lane VIC.
5. Chattogram 8 lane VIC.
6. Khulna 3 lane VIC.
7. Sylhet 3 lane VIC.

and (ii) supervise the contract execution of infrastructure civil works for construction of Boundary Wall and Land Development including recommendations of the ESMP implementation at

1. Mymensingh.
2. Cumilla.

3. Noakhali.
4. Rangpur
5. Sylhet.

If there are revisions /changes to the tasks stated above, the Consultant shall be responsible for providing their services on the revised scope of work.

The Services will be executed in two phases (Assignment A and Assignment B) and consists of the following:

Assignment A: Preparation of detailed engineering design, considering the major equipment needed for vehicle emissions inspections and 5-storied buildings; boundary wall, land development, development of site-specific Environmental and Social Assessment (ESA) and Environment and Social Management Plans (ESMPs) of the proposed infrastructure facilities, preparation of bidding documents for Works and Goods in its entirety; and technical advice to BRTA during the bidding process for the infrastructure construction.

Assignment B: Supervision of the construction works of Boundary walls and Land Development at Mymensingh, Cumilla, Noakhali, Rangpur and Sylhet including the implementation of ESMP.

A Lump-sum Contract will cover services specified in Assignment A and a Time-based Contract will cover services specified in Assignment B.

The Contract for Assignment B will become effective only after satisfactory completion of the Assignment A and relevant key experts will be deployed as and when required to meet the objective of assignment B.

3. Scope of Design Services.

The assignment will comprise but not limited to the following tasks:

Assignment A. Detailed engineering design, preparation of bidding documents and inputs during bidding process, evaluation of bids and award of related Work contracts for construction of VICs at Mymensingh, Cumilla, Noakhali, Rangpur, Chattogram, Khulna and Sylhet.

The scope of the will include but not limited to the following:

The Consultant will design the facilities of Seven VICs for BRTA, located at Mymensingh, Cumilla, Noakhali, Rangpur, Chattogram, Khulna and Sylhet. The design will consider the following features and requirements:

1. Detailed design of 5-storied multipurpose building with 10 storied foundation and utilities for Vehicle Inspections Centers at Mymensingh, Cumilla, Noakhali, Rangpur, Chattogram, Khulna and Sylhet. All establishments will have “universal access” features in the design that

would allow easy access to physically challenged persons to the facilities. The design also will take into account necessary safety and security features (fire, earthquake, emergency situation including evacuation, etc.), in particular for management of hazardous materials as relevant. The buildings should be designed with considering essentials of a green and energy-efficient features e.g., Solar panels or renewable energy integration, High-performance insulation, double-glazed windows, and shading devices, LED lighting with motion sensors and daylight harvesting, rainwater harvesting and storage systems, and low-flow fixtures, dual-flush toilets, and water-efficient landscaping, Use of locally available, recycled, and non-toxic materials, Low-VOC paints, adhesives, and finishes, modular construction techniques to reduce waste, adequate natural light and ventilation, acoustic comfort and green interior spaces.

2. Design and supervision of boundary wall and land development at Mymensingh, Cumilla, Noakhali, Rangpur and Sylhet.
3. Soil test, digital survey, and site development as preparatory activities.
4. Design of water supply, drainage and sewerage network, sanitation, internal electrification, boundary wall, roads (internal and access), arbore culture, lifts (Grade A) of 1,000kg each, electric substation, generator, central air cooler system, and outdoor lighting, all of them following Bangladesh National Building Code (BNBC) and the Building Energy Efficiency and Environment Regulation (BEEER).

All through the assignment under this contract, the personnel and other contractors by the consultant will accept a “Code of Conduct” against sexual exploitation and abuse (SEA) and sexual harassment (SH). In addition, the consultant will also strictly adhere to related project environmental and social (E&S) compliances.

Task A.1: Documents Review and Inception Report. The Consultant will:

- Familiarize itself with the BEST project, the on-going project status, the present situation and work done in the past; visit BRTA VICs, meet with PIU and relevant stakeholders; and reach an agreement on the approach to the assignment.
- Undertake a review of the available project documents, including the following:
 - i. World Bank’s Project Appraisal Document and the Project Operations Manual.
 - ii. The project’s environmental and social (E&S) documents, namely, the Stakeholder Engagement Plan (SEP), Labor Management Plan (LMP), the Project’s Environmental and Social Management Framework (ESMF) and ESMP.
 - iii. Preliminary findings and reports of previous World Bank missions.

- Hold an inception meeting with the Project Implementation Unit (PIU) at BRTA to clarify questions and agree on the following:
 - i. Stakeholder consultation plan.
 - ii. Schedule of fieldwork and deliverables.
 - iii. Responsibility for approvals.
 - iv. Any other identified issues.

Produce a Quality Plan for the execution of the project and an Inception Report that outlines the approach to the assignment, agreements reached with the PIU-BRTA, meeting minutes and implementation schedule.

The stages of services will comprise but not limited to the following:

Task A.1.1. Site Evaluation and Design Concepts.

This stage involves pre-construction activities related to site evaluation, and preparation of design based on Feasibility Study Reports (FPRs), ESA report, and other relevant pertaining issues in consultation with PIU. The D&S Consultant is expected to keep the following objectives in mind while preparing the concept design:

- World class facility to facilitate delivery of the proposed services.
- Eco-friendly to minimize the adverse environmental and social impact (e.g. rainwater harvesting, solid waste and water effluent management, sanitary and kitchen wastewater management, sound and vibration management, renewable energy, use of eco-friendly material, etc.);
- Energy efficient design.
- Economical to reduce the total cost of ownership.
- Flexible with respect to usage and expansion /contracting in the future.
- Architecture influenced by the local heritage and culture of the region.
- Friendly for physically challenged people.

Task A.2: Preparation of Engineering Designs.

The Consultant shall prepare the structural design, construction drawings, specifications, Bill of Quantity (BoQ) along with ES BOQ and bidding documents for the facilities with the following programme. The consultant will also ensure that the ESMP recommendations are incorporated in the bidding documents.

Task. A. 2.1: Site Evaluation.

The D&S Consultant shall carry out following investigations / assessments at the project site to generate relevant data required for designing the facilities:

- Cadastral Search/Topographic survey of the plot.
- Geotechnical investigation for soil bearing capacity.
- Geotechnical investigation for mechanical and chemical analysis of substrata.
- Geotechnical investigation for Ground Water Table and chemical analysis of water.
- Electrical resistivity test.
- High Tension Power Transmission Lines if in vicinity.
- Natural / seasonal water bodies / streams in site and in vicinity of < 2 Km
- Location of plants and trees on site >1.5 m height which need to be cut / relocated.
- Signal strength for various telecommunication services providers.
- Collecting metrological data pertaining to maximum, minimum temperatures, humidity and rainfall from the Meteorological Department.
- In consultation with local authorities, the Consultant will perform a cadastral search for the property lines, including a topographic survey, and install appropriate benchmarks and beacons delimiting the property boundaries where the structures are to be constructed.
- The Consultant will undertake, compile and review information available from private and public sources, to the extent feasible, which will provide an understanding of the physical conditions in and around the vicinity of the proposed project sites including: (i) current topography; (ii) geotechnical data; (iii) extreme flood levels; (iv) surface water drainage and sanitation conditions; (v) water supply; (vi) electrical supply; (vii) utilities like power and water supply, solar power installation including water harvesting.
- Topographic detailed maps of the site plots shall be compiled at a target scale of not less than 1:500 for the general area where the building will be constructed. The mapping and/or related digital product shall meet or exceed ASPRS (American Society of Photogrammetry & Remote Sensing) Horizontal Accuracy at 95% Confidence Level accuracy standards (*RMS* error in X coordinate limited to 15 mm). All survey work shall be performed under adequate supervision and quality control measures. Deficiencies shall be recognized and steps to initiate corrective actions shall be taken as required. The maps shall contain all the topographic and planimetric features encountered. The maps will properly depict the existing site conditions as necessary. The final mapping products shall comply with and contain

but not be limited to the following:

- Terrain features/contour development.
- Turning points that define drainage channels, ditches, etc., will be consistent in depicting correct alignment and direction of drainage.
- Spot elevations shall be established and shown on the maps at selected points, such as hill tops, depressions, at intersections and along centerlines of streets and bridges.
- Sewers, service lines, surface and sub-surface utility systems, water, electric, telephone, overhead power lines, storm drainage features and structures, platforms, individual trees and existing waterway.

A.2.1 Pre-Design Services.

Activity 2.1.1: Concept Design.

The design shall be as per the design basis report prepared by D&S Consultant and agreed by the Client. BRTA is also engaging an experienced consultancy firm who will be providing support to BRTA as a Transaction Advisor to propose different technical options and/or technologies for the VICs. The D&S consultant is expected to work closely with the Transaction Advisor to ensure that the design takes into account the infrastructure requirements for the technologies of the VIC management facilities.

The D&S Consultant shall prepare two distinct concept layouts considering effective usage of area and space, natural elements as wind, sunlight, aesthetic values. The concept layouts / presentations shall essentially consist of following CAD Drawings in 2D and 3D, Digital walkthrough.

A.2.1.2 Design Basis Report.

The Consultant will analyze information gathered and data available and generate a design basis report on the proposed designs considering the following:

- Codes and standards applied for the project. For structural design define the basic system (ACS, BS or EU), supplemented as necessary by national standards, directives and rules.
- Site parameters, including design wind speed, design precipitation, design extreme flood levels, temperature differential, insolation, etc.
- Design loads, load combinations, earthquake resistance factors and environment friendly.
- Designing/developing the infrastructure with enhanced resilience to climate impacts.
- Design life of the structures.
- Utility demands, to be determined in consultation with relevant users and authorities.
- Materials and products: type, strength and quality, resistance factors.
- Solar power installation and water harvesting.

A.2.1.3 Develop Alternative Design Concepts.

Where appropriate, the Consultant will develop alternative concepts with preliminary engineering cost estimates for each alternative scheme. In developing alternative design concepts, the Consultant is encouraged to include as much green/environment friendly/enhancement infrastructure components as possible. These could take the form of:

- Rain harvesting and large underground reservoirs with pumping to a header tank.
- PV panels on roofs with LED light fixtures and independent circuitry.
- Ceiling fans offices when conditions permit AC units to be turned off.
- Double glazed windows in PVC frames with integral rubber sealing to limit draught.
- Intelligent switches to stop AC units when doors and windows are opened.
- PVC doors, ceilings and railings to avoid corrosion in wet and humid places.
- HDPE plastic piping and faucets (no metallic fixtures) in wet and humid places.
- Adequate tree planting near large aperture windows to limit glare and heat.

A.2.2 Preliminary Engineering Design Services.

A.2.2.1 Finalize Design Concepts.

Based on input from all the stakeholders including, Department of Environment, World Bank and Transaction Advisor and modify and finalize design concepts, as appropriate. The Consultant shall then prepare a PowerPoint presentation of all the projects' design options and outline costing to be presented to the client and stakeholders alike at a purposely organized conference(s).

The Consultant shall develop the site-specific ESAs and ESMPs to identify both E&S risks associated with the VICs construction and operation. The ESA/ESMP must include the following:

- Review of existing information (relevant all documents).
- Provide a full description of the sub- project (such as project location, layout, components, construction materials, etc.) .
- Provide a description of the environment (such as baseline data on physical, biological and socioeconomic characteristics of the building site along with area of influence).
- Analysis of alternatives to the proposed infrastructure.
- Address occupational health and safety (OHS) and community HS requirements in the line with the World Bank's Environmental and Social Standards (ESS) 2 and ESS4, 4. and green building concepts in the line of ESS3;
- Include "universal access" to the facilities for the differently abled persons and as well as separate facilities for males and females, such as toilets, rest rooms and creches.

- Identify relevant stakeholders to be consulted during preconstruction, construction, and operation phases of the project. Design and conduct a public consultation programme in accordance with provisions of the SEP.
- Ensure that all provisions of Bangladesh's and the World Bank Environmental and Social Framework are complied with.
- Devise a mitigation plan (ESMP) for all project-related impacts.
- Assess BRTA's institutional capacity to execute and monitor the ESMP and recommend necessary institutional capacity building including additional professional for environmental and social management. The bidding documents will include the ESMP, necessary E&S clauses, a Code of Conduct for the workers on SEA/SH risk management and required E&S manpower of contractor and the required BoQ.

The Consultant will incorporate the E&S recommendations of the ESA/ESMP in the VICs design; assist PIU-BRTA in engineering design interpretation; and adopt the recommended mitigation measures during design and planning. The design will include "universal access" for the differently abled persons and as well as separate facilities for males and females, such as toilets and rest rooms.

TaskA.2.2.2. Master Plan Preparation.

This stage involves preparation of detailed master plan for the entire land plot consisting of the following:

- Buildings outline.
- Roads, ramps approaches, and main gate layouts.
- Open spaces, amenity spaces including landscapes, garden and parking areas.
- Coordinated services layout.
- External firefighting / hydrant system layout.
- Electrical substation, backup power generation.
- Storm / rainwater drainage layout including rainwater harvesting scheme.
- Sewer system layout including connections to local sewer system if available or locations of STP/ ETP if required including discharge management of treated sanitary and effluent water.
- Water supply network, including connection.
- Renewable energy generation plan and location of such facility.
- Solid waste reusable facility.
- Area statement including broad sizing of the utilities viz. Connected Electrical Load, Firewater reservoir and pump sizes, HVAC TR rating, etc.

A.2.3 Detailed Engineering Design Services.

A.2.3.1 Final Design

Following on from the presentation and taking into account any additional feedback, the Consultant shall refine the outline designs and move on to the final detailed design stage. The final detailed design shall cover, but not be limited to, the design report, detailed drawings, specifications, engineering estimates and detailed BoQs. Where appropriate, all the designed facilities shall, as far as possible, be compatible with the existing structures within the project area.

The firm will prepare all the necessary design but not limited to :-

Task A.2.3.2: Architectural Design Scope

Detail Architectural Design shall comprise the following:

- Detail design of the building (considering the purpose, functional aspects and operation).
 - Three dimensional studies for coordination of various services.
 - Preparation of schedule for doors, windows, plumbing etc.
 - Issue of Good for construction drawings.
 - Preparation of infrastructure development plan.
 - Preparation of site development plan.
 - Interact with various disciplines to incorporate utility requirements.
 - Drawings & documentation for approval of various statutory authorities.
 - Application for approval from statutory / local authority.
 - Technical support for various approvals & sanctions.
 - Site plan.
- Floor plan showing, (a) furniture/equipment/machines layout in consultation with the users; (b) all dimensions, doors, windows schedule and (c) description of finish materials of each room, if any.
 - Proper section, four-side elevation (more than two sides).
 - Blow up details, toilet details, kitchen details, if there by any.
 - Door and window details sheet.
 - Walkway pavement etc.
- Solid waste disposal system.
- Firefighting system.
- Landscape details.
- Provision for rain water Harvesting
- All drawings should be submitted & duly signed and presented within a brief folder for

better preservation.

- Water treatment and washing plant.
- Other relevant architectural drawings.
- Wire (Cable TV/dish TV, internet line, CCTV line, Wi-Fi etc).

Task A.2.3.3: Structural Design of Buildings Scope.

The D&S Consultant consistent with applicable laws, statutory permissions, construction requirements, Bangladesh National Building Code (BNBC) and other regulatory codes and preliminary Design Basis Reports, shall prepare and compile the detailed design & engineering requirements for infrastructure as under:

- Prepare alternative structural schemes interacting with architect / client.
- Designing/developing the infrastructure with enhanced resilience to climate impacts.
- Detail structural analysis for building and other structures.
- Prepare detail specifications of items proposed to be used in construction;
- Issue of good for construction structural drawing.
- Implementation of Green Building Concept - the buildings should be designed with considering essentials of a green and energy-efficient features e.g., solar panels or renewable energy integration, high-performance insulation, double-glazed windows, and shading devices, LED lighting with motion sensors and daylight harvesting, rainwater harvesting and storage systems, and low-flow fixtures, dual-flush toilets, and water-efficient landscaping, use of locally available, recycled, and non-toxic materials, low-VOC paints, adhesives, and finishes, modular construction techniques to reduce waste, adequate natural light and ventilation, acoustic comfort and green interior spaces.

The ADR (Architectural Design Report) and DBR (Design Basis Report) prepared by the D&S Consultant shall be submitted to the Client for approval. The approval to such ADR and DBR shall be to the context of the functionality intended for the STP. However, D&S Consultant shall be responsible for correctness and adequacy of the Design.

Task A 2.3.4: Electrical Design Scope.

Detail Engineering & Design shall comprise all temporary / permanent / internal / external / backup power distribution, including agreement computation, engineering drawing & safety installations as under:

- Preparation of single line diagram for LT distribution & lighting distribution.
- To review equipment, load list & submit distributed generation (DG), transformer, panel & cable sizing calculations.
- Preparation of high tension & low-tension substation layout;

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- Electrical layout and Piping and Instrumental diagram (P&ID) for Cable tray, Illumination, power, earthing & route plan for power cable & control cable etc.
 - Preparation of control wiring diagram for interlocks & alarms wherever applicable.
 - Designing internal lightning, street lighting, yard lightning etc..
 - Specifications & layout of emergency lights provision, wherever required.
 - Emergency power supply & distribution including internal provision in main switch gear to switch over emergency power.
 - System power flow & fault level analysis.
 - Relay coordination & setting.
 - Earthing & lightning protection system design.
 - Scheme for Data / Voice cabling & Computer Systems and networking.
 - Bill of quantities for items to be procured.
 - Issue “good for construction drawings”.
 - Coordinating with electricity Supply Company / board for sanction and release of power load.
 - Based on design parameters as per relevant Bangladeshi / International standard of all the electrical equipment, the Consultant will prepare and submit the design basis report to client for review and approval. After getting the approval, the Consultant will create the distribution network area wise / system wise to meet the power requirement in terms of single line diagrams, substation layouts, earthing and lightning layouts and lighting layouts and detailed specification for all equipment included data sheets etc.
 - Preparation of layout and scheme for extra low voltage system includes fire detection system, public address system, telephone, data, TV system, access control system, CCTV. Integrated building management system etc. However, D&S Consultant shall be responsible for correctness and adequacy of the Design.

Task. A.2.3.5 : HVAC System Design Scope.

Detail design & engineering of HVAC system shall comprise designing, detailing, value engineering and specifying with schedule of quantities for all works pertaining to air-conditioning, ventilation, smoke exhaust and fresh air supply system. It is conforming to the standards, statutes, regulations and safety codes of BNBC etc. and designs to efficiently and effectively operate for maximum energy efficiency and low noise level in all climatic conditions and as under:

- Load Estimate-Cooling & Heating.

- Designing of Entire Ventilation system.
- Determine room-by-room loads and airflow using standard manual calculation procedures.
- Layout duct system on floor plan, accounting for the direction of joists, roof hips, firewalls, and other potential obstructions.
- Determine conflict locations and types, duct lengths, and connections required to produce layout given construction constraints.
- Size duct system according to standard manual calculation procedures.
- Size HVAC equipment to sensible load using standard manual procedures;
- Equipment selection based upon design calculations and green concepts.
- Closely interact with the architect / clients and prepare preliminary schemes for approval.
- Issue "good for construction drawings".

Task. A.2.3.6: Fire & Life Safety Design Scope.

Design and Engineering shall comprise fire hydrant system, fire alarm, firewalls with fire doors, fire escape staircases, doors etc. As per Part 4 of Bangladesh National Building Code (BNBC) (2006 or latest) and suitably incorporating leading practices as per global standards and as follows:

- Prepare detailed Master Design Document List & Design Basis;
- Prepare a scheme for the Fire Fighting System.
Fire Hydrant System consists of wet riser cum down comer; hydrants, hose reel and hose box; booster pump, sprinkler pump, main pump, jockey pump and diesel engine driven pump; automatic fire hydrant panel etc. Fire Alarm System consists of smoke detectors. Heat detector etc.; manual call point; local controls panels and main control panels; public address system and hooter.
- Closely interact with the architect / clients and prepare preliminary schemes for approval.
- Provisional and final Fire No Objection Certificate (NOC) from relevant local fire authority.

Task A.2.3.7: Environmental Engineering & Design Scope.

Detail design & engineering of ETP / STP, Rainwater harvesting design etc. shall comprise the following:

- Prepare design brief after collecting inputs.
- Closely interact with architect / clients & prepare preliminary schemes for approval.
- Preparation of drawing for obtaining required statutory approvals.

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- Study of effluent characteristics.
 - Effluent testing.
 - Department of Environment's clearance certificate to establish and operate.
 - Waste disposal and sewage treatment systems design.
 - Development of water harvesting and irrigation methods.
 - Process study for soft water, DM (de-mineralized) water, cooling water, chilled brine, steam etc.
 - Process requirement study for waste and sewage water system and selecting appropriate treatment.
 - Preparing Piping & Installation Diagrams (P&IDs) for various systems for approvals.
 - Detail design for piping and routes;
 - Installation and testing supervision; and
 - Issue of good for construction drawings.

Task A.2.3.8: Office Interior Work Design Scope

Detail interior design shall comprise the following:

- Formulation of the concept.
- Prepare drawings in accordance with concept finalized with client.
- Finalization of detail specification of all items & bought out items with client.
- Preparation of drawings for interior fit outs; and
- Issue of good for construction drawings.

Task A.2.3.9: Landscaping Design Scope.

Detail design & engineering of landscape design shall comprise the following:

- Formulation of the concept considering local flora and fauna.
- Prepare drawings in accordance with the concept finalized with client and issue of good for construction drawings.
- Study current substrata condition of landscape area.
- Design grass, trees & shrubs pattern as per climatic conditions & availability of substrata at site.
- Design good irrigation system for landscaping work using recycled water.

Task. A.2.3.10: Building Management System (BMS) Design.

Detail design & engineering of BMS design for the structure shall comprise the following:

- HVAC control system design & detailing.

- Electrical distribution controls design & detailing.
- Water supply control design & detailing.
- Lighting control design & detailing.
- Access control design & detailing.
- Security, surveillance and safety design & detailing.
- Advanced communication system design & detailing.

Task. A.2.3.11: Detailed Cost Estimation.

The D&S Consultant/s will be required to prepare the cost estimate based on the detail design and seek approval of the same from the Project Director. The Cost estimate should be good enough to be used for budget authorization and must have suitable contingency for the construction work.

Task. A.2.3.12: Risk Identification and Mitigation.

The D&S consultant shall identify the key risks for y related to construction/up gradation /execution of the STPs. The D&S Consultant/s shall analyze each of the risks and will suggest mitigation plan for

Task A.3: Environmental and Social Assessment:

Conduct an updated environmental and social impact assessment (ESIA) considering the new infrastructure and potential social impacts and addresses potential social impacts of the project, including impacts on land, livelihoods, health, gender equality and sexual exploitation and abuse (SEA) and sexual harassment (SH) and an environmental and social impact assessment (ESIA).

Prepare an Environmental and Social Management Plan (ESMP) as appropriate with reference to the ESIA, incorporating necessary technical specifications with design and contract documentation.

The consultant shall be responsible for preparing the ESMP which will consist of a set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of the project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels. The content of the ESMP will refer to the project environmental and social management framework (ESMF) and the other E&S documents (SEP, LMP, ESA, etc.) may at least include the following:

- Mitigation-The ESMP should include: (i) identification and summary all anticipated adverse environmental and social impacts; (ii) description with technical details—each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; estimates any potential

environmental and social impacts of these measures; and (iv) takes into account, and is consistent with, other mitigation plans required for the project.

- **Monitoring-** The ESMP shall provide: (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.
- **Capacity Development and Training-**The ESMP shall provide a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). To strengthen environmental and social management capability, the ESMP shall recommend training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.
- **Implementation Schedule and Cost Estimates-**The ESMP shall provide (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures should be integrated into the bidding document.

Task A.3.2: Preparation of bidding documents and ES inputs during bidding process.

The consultant will be responsible for preparing the complete bidding documents for the works packages resulting from the design services under the assignment. The bidding documents will include the key measures of site-specific ESMPs (as prepared under Assignment A), necessary clauses and required BoQ to implement ESMP). While preparing the bidding documents, the consultant will use the appropriate standard/ model bidding documents acceptable to the Client and the World Bank.

The Consultant shall associate with the Client during the entire bidding process, provide necessary inputs during this process including evaluation of bids and all other related activities till award of contracts for the facilities covered in the design.

Task A.4.1. Detailed Engineering Design, preparation of bidding documents and inputs during bidding process, evaluation of bids and award of Goods contracts.

The Consultants will perform the following activities mentioned in terms of sequential stages (but not limited to) under direction and in consultation with Project Implementation Unit (PIU). The PIU

will take the lead on matters pertaining to the contract and the various procurements and technical matters. The scope of the works includes the following activities, but not limited to, which all contribute to the installation and operation of the VICs:

- Review of design documentation and related works for installation of VIC at BRTA.
- Review of latest technology for design and installation of VICs accepted globally and appropriately incorporate the same in preparation of design documentation of VICs.
- Prepare a list of new equipment and specify the performance requirements of preferred technologies.
- Market research and analysis for preparing vendor neutral specifications for equipment/technology/ machineries.
- Define Minimum Technical Requirements and service level agreement for vendors after undertaking a market analysis for establishing the criteria for selection.
- Prepare Technical Specifications, Bill of Materials (BoMs) based on PIU/ Establishment Committees / Boards' advice, reflecting the market requirement, technology roadmap recommendations;
- Prepare cost estimates for proposed BoMs.
- Prepare bidding documents in its entirety.
- Advise PIU/BRTA managements on the design layout / infrastructure requirement for the technologies (machinery and equipment).
- Assist in addressing vendor queries and evaluation of proposal if required by PIU.
- Provide technical advice to procurement processes as required.

B. Construction Supervision Service:

Assignment B – Construction Supervision, Contract Management and ESMP Implementation for Construction of Boundary Wall and Land Development at Mymensingh, Cumilla, Noakhali and Faridpur.

The Contract for Assignment B will become effective only after satisfactory completion of the Assignment A and relevant key experts will be deployed as and when required to meet the objective of Assignment B.

Task B.1. The Consultant shall provide comprehensive construction and contract management services during construction to ensure that the works implemented, and goods provided are in accordance with the designs, specifications and terms and conditions of the relevant contracts and standards. The Consultant would ensure construction quality and contractors performance. Following the successful completion of the design phase, the Consultant will be responsible for supervision and

management and ESMP implementation of the civil works contracts. The services of the consultant shall include, but not be limited to the following activities:

- Review and approve the contractors work program and progress schedules ensuring that the Contractors' have incorporated / followed the most effective and expeditors methodology for carrying out the works and submit to PMU for approval.
- Conduct weekly site meetings with contractors.
- Test the construction materials and equipment (where applicable), in order to ensure that the works implemented, and goods and equipment supplied are in accordance with the deigns, specifications, and terms and conditions of the relevant contracts and standards.
- Submit monthly progress reports together with the monthly statements on progress and test reports for constructional requirements and supplied materials according to specification and best practice;
- Supervise and monitor works based on the work program submitted by the contractors.
- Supervise all construction works during implementation as per contract agreement through establishing procedures for systematic on-site checking and monitoring of quality and quantities of all work items, including field checks to confirm integrity of survey data, application of improved and modern methods for construction of the infrastructure.
- Work closely with field engineering staff in order to ensure quality and timely completion of the works.
- The consultant would be responsible for inspection and supervision of the construction works, testing of construction material, in order to ensure that the works implemented, are in accordance with the designs, specifications and terms and conditions of the relevant contracts and standards.
- Provide strong on-site project supervision team of key and non-key experts, with an onsite project office, report daily progress of the works and monitor deliverables strictly against the agreed work plan submitted by the contractor;
- Ensure that the tests and frequency of tests stated and compliance of the test results are being done by the contractors as outlined in the bidding documents.
- Inspect borrow pits, and crushing plants, and order tests of materials and ensure adherence to specifications and approve the sources of materials
- Ensure that the contractors are maintaining site order books and recording their activities as per the work program.
- Ensure complete presence of their staff during all casting executed by the contractors.
- Make arrangement to check the quality of the materials brought to site, ensure quality of construction consistent with the specifications.

- Ensure implementation of Quality Assurance Check List for all category of works in order to establish a systematic construction procedure
- The measurement book (MB) to be signed by the Consultant
- In the event of contractual dispute which may result in legal action, adjudication or arbitration between the contractor and the employer, and on the instruction, will assist client in collating and preparing factual documentation which describes the circumstances of the dispute.
- Liaise with the Environmental and Social Specialists of the Bank/ Project Management Unit and provide data, information and all other requested assistance to them.
- Monitor implementation of site specific Environmental and Social Management Plans and compliance with Social and Environmental safeguards as per World Bank guidelines
- Ensure compliance of safeguard instruments for all contract packages.
- Ensure implementation of safeguard compliances stated in BOQs of the bidding documents.
- Ensure withholding of interim payments to the contractors if they failed to implement the items for safeguard compliance of BOQ items for all Contract Packages.
- Variations and claims management. Prepare Variation Orders considering contract agreement and recommend for approval, if required. In this case, proper attention should have to be paid during design and preparation of BOQ so that the numbers of Variations could be kept minimum.
- Ensure the provision of warranties, guarantees and insurance management.
- Assist client concerning the Schedule of handing over the sites, and possible delays due to lack of possession with a view to assuring that the Contractors are given possession of the Site in accordance with the agreed work program.
- Jointly inspect with client the completed civil works and assist informal taking over, and review and approve or prepare “as built” drawings and plans (as the case may be), and provide reports testifying satisfactory completion of the contracts.
- Assurance for proper demobilization and restoration of the construction sites after completion, O&M during warranty period by the contractors
- Preparation of monthly and Quarterly progress reports
- assist the DPD of the PIU-BRTA in acceptance and close of contract, issuance of completion certificates, and preparation of documents as required for acceptance of works by BRTA;

Task. B.3: Certification of Bills.

The D&S Consultant shall be responsible for reviewing and certifying the bills of work done submitted by the Contractor (s). The activities will include but not limited to the following:

- Checking and certifying of bills submitted by the Contractor in accordance with the contract.
- Review and certify measurement as per applicable standards and the contract.

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- Deduct / hold appropriate amount from the bills in case of any non-compliance observed with respect to quality and safety, till such non-compliance is addressed by the Contractor (s);
 - Review and approve rate analysis in consultation with PIU for any extra / non-scheduled items executed by the Contractor(s);
 - Review and comment any claims made by the Contractor (s);
 - Assessment of cost over-runs / savings with every bill.
 - Preparation of deviation statements (financial) at predetermined stages.
 - Manage change orders.
 - Review and certify final bills of the Contractor (s) to facilitate payment.
 - Maintain accurate records of all date and quantities of work carried out. In addition, maintain all payments made to the Contractor(s), and all materials and equipment supplied to the site.

Task. B.4: Completion Certification and Handing Over.

The D&S Consultant shall assess the completeness of works as per the contract and shall certify the completion, allowing the client to initiate occupying process into the premises. Following activities are expected under acceptance / handing over:

- Visit the works completed as announced by the Contractor, generate list of snags, and issue the same to the Contractor for action;
- Monitor performance during defects liability period and enforcing rectification of defects.
- Document relevant material, work test reports, measurements, and commissioning reports pertaining to each section of the work.
- Check for signage, markers for cables, trench covers, proper functioning of various systems.
- Review as built drawings submitted by the Contractor (s);

Review the status of relevant statutory approvals.

- Certify the virtual completion and the final completion of works as applicable.
- Testing, commissioning and handing over the facility.
- Detailed inspection at completion of work and during defect liability period, Co-ordination with the contractors to rectify the defects during the defects liability period which shall be one year after the handing over of the site.
- Recommending release / forfeiture of securities / guarantees.

Task. B.2. ESMP Implementation. The consultant shall ensure the implementation of the ESMP shall be executed effectively. Consequently, each of the measures and actions to be implemented will be clearly specified, including the individual mitigation and monitoring measures and actions and the institutional responsibilities relating to each, and shall share a report on the progress of the ESMP implementation on a quarterly basis to PIU-BRTA. The services of the consultant shall include but not limited to the following:

- Assist contractor's in preparing site specific management plans and compliance of EHS (ESMP compliance report).
- Ensure that the Contractor delivers its E&S obligations under its contract. This includes, but is not limited to the following:
 - (i) review the Contractor's Environment and Social Management Plan (C-ESMP), including all updates and revisions at frequencies specified in the Contractor's contract (normally not less than once every 6 months);
 - (ii) review all other applicable contractor's documents related to E&S aspects including the health and safety manual, security management plan and SEA and SH prevention and response action plan.
 - (iii) review and consider the E&S risks and impacts of any design change proposals and advise if there are implications for compliance with ESA, ESMP, consent/permits and other relevant project requirements.
 - (iv) undertake, as required, audits, supervisions and/or inspections of any sites where the Contractor is undertaking activities under its contract, to verify the Contractor's compliance with E&S requirements (including, where appropriate, its SEA and SH prevention and response obligations);
 - (v) undertake audits and inspections of Contractor's accident logs, community liaison records, monitoring findings and other E&S related documentation, as necessary, to confirm the Contractor's compliance with E&S requirements.
 - (vi) agree remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor's E&S obligations.
 - (vii) ensure appropriate representation at relevant meetings including site meetings, and progress meetings to discuss and agree appropriate actions to ensure compliance with E&S obligations.
 - (viii) check that the Contractor's actual reporting (content and timeliness) is in accordance with the Contractor's contractual obligations.
 - (ix) review and critique, in a timely manner, the Contractor's E&S documentation (including regular reports and incident reports) regarding the accuracy and efficacy of the documentation.
 - (x) undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential E&S issues.

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- (xi) establish and maintain a grievance redress mechanism including types of grievances to be recorded and how to protect confidentiality e.g. of those reporting allegations of SEA and/or SH.

5. Implementation Arrangement.

The Consultant will work closely with the DPD of the PIU-BRTA and, if needed with the Project Director of the BEST Project (PIU-DoE). The DPD will facilitate the construction and coordinate their work with other relevant units of DoE, local administration and relevant Ministries and agencies. The consultant will establish their main office close to the Project Director's office and the field office at convenient location(s) to implement the work properly.

After the inception stage the Consultant shall prepare a detailed schedule and task-flow diagram, which depicts the interrelationship of various tasks in the assignment, which lead to the completion works, and mechanism of coordination with the client and other related entities. This would be kept and updated throughout the Project duration.

The Chairman of BRTA will be the representative of the Client. The DPD of the PIU-BRTA will coordinate all interfaces with the Consultant and, with support from the Chairman when applicable, will assist the Consultant in resolving various administrative issues, which may arise during the design and supervision period. The Consultant's Team Leader will be the principal contact and will be expected to be readily available during project implementation.

6. Facilities to be provided by the Client.

BRTA will assist the Consultant as may be necessary or appropriate for the prompt and effective execution of the assignment and for this, the PIU-BRTA will assist the Consultant with the following:

4. Provide copies (where possible) of all key documents (including ESA, ESIA, ESMF and other relevant technical documents requested by the Consultant);
5. Facilitate meetings with all relevant stakeholders.
6. Provide existing data and information including all reports prepared so far for the project and also other relevant reports which may be available in future.

Both the consultant and PIU-BRTA will treat all personal data collected under the assignment with confidentiality and secure privacy.

7. Facilities to be provided by the Consultant.

The Consultant should have at least the following facilities during the construction supervision/monitoring period:

- Suitable office space with consumables and communication both in field and main office;

- Suitable equipment for all supervision /monitoring works.
- Vehicles, office equipment including telephones, computers and printers, etc.
- Required support personnel.

No separate / additional payment is required from the Project for the Consultant's facilities.

7. Duration of Contract and Form of Contract.

The total duration of the contract will be 29 months, while Assignment B will become effective upon successful completion of the Assignment A by the 12th month after signing the consultancy contract and up to satisfaction of the Client. The Assignment A will be lump sum type of contract while Assignment B will be time based.

8. TEAM COMPOSITION & QUALIFICATIONS OF KEY EXPERTS.

The Consultant should propose a team of experts that contains a skill mix relevant and sufficient to deliver the required consultancy services. The Consultant must also have demonstrated expertise in the design and supervision of similar type's structures. The firm shall provide a team consisting of experts with adequate background and experience in designing and construction supervision. The expected team would include a set of key experts comprising a Team Leader, Architects, Civil Structural Design Engineers, Construction Supervision Engineers, Electrical Expert, Utility Service Expert, Green building expert, OHS expert, and Environmental and Social Safeguard Expert. The curriculum vitae of the key experts should contain information of the assignments they have successfully completed within last 5 years, with complete names and addresses of the clients and the name and contact information of the immediate supervisors. The procuring entity may contact any of those clients of the first ranked firm, for verification of the information provided by the firm, prior to signing the contract. Following is the indicative key experts' team structure required from the D&S Consultant in order to deliver the assignment. The Consultant can propose some of their key experts as intermittent positions and some of may be in full time positions. The team should, include the following key experts. The consultant may propose additional expertise as required as non-key experts in addition to the Key Experts mentioned below. However, qualifications of non-key experts will not be considered in the evaluation of the proposals. Only the CVs of key experts listed below for the two Phases will be considered for evaluation. All key members of the team shall be proficient in speaking and writing in English.

Consulting firm's Required Experience, Resources & Delivery Capacity:

- i. General Experience of the consulting firm should at least 10 (ten) years from the date of publication of the advertisement;
- ii. Specific experience in conducting or completing similar work will be preferred.
- iii. Availability of appropriate skills/experts among staff demonstrated capacity to

- handle such assignment in terms of resources;
- iv. Audited Financial Reports of the proposers for the last three years;
 - v. Availability of other resources- logistical and support services of the firm;
 - vi. Updated Trade license, Tax Return, VAT & TIN certificates;
 - vii. Consulting firm having working experience of PPA 2006, PPR 2008/2025 and World Bank’s “Procurement Regulations for IPF Borrowers” July 2016, revised November 2020 (“Procurement Regulations”);
 - viii. Work experience of similar nature with Development Partners or Donner Fund is preferable;
 - ix. Key Experts will not be evaluated at the shortlisting stage;

9.1 List of Key Experts for Assignment A (Lump sum contract), tentative input:

The following indicative inputs are provided to carry out Assignment A. However, the Consultant may adjust the input of respective resources or engage additional resources with appropriate skills to meet the scopes of the assignment without additional claim.

Sl. No	Expert position	Educational qualification & experiences	Total person month	Indicative Number of positions
1	Team Leader	S/he shall have a minimum Graduate degree in Civil Engineering and membership of a recognized professional institution. S/he shall have 20 years of overall professional experience in construction management, including leading and managing a construction team for civil works, planning and design. S/he shall have experience of at least 10 years in construction management of high rise building and steel structure, project management, coordination on design & drawings, contract management, quality control, monitoring, reporting & top supervision of similar type of projects including green buildings. Previous experience in design, construction and/or supervision of VICs will be an advantage. S/he will act as Team Leader of the Consultant, as well as the Engineer’s Representative of the project, being responsible for managing the	6	1

		project and contracts for timely completion of the project with quality in both Assignment A and Assignment B.		
2	Senior Architect	S/he shall have a minimum Graduate degree in Architecture and/or Engineering and membership of a recognized professional institution, with 15 years' working experience of which 10 years' experiences in architectural designing & planning similar nature of projects and have experience in designing green building as per international best practices and the design should be able to provide enough flexibility to integrate future requirements. Having also experienced in energy efficient architectural designs that reflect green building principles following the most up to date standards etc.. His/her tasks and responsibilities shall include but not be limited to the providing technical support on matters related to innovative planning and design. Previous experience in design, construction and/or supervision of VICs will be an advantage.	6	1 (Incremental, and/or Intermittent)
3	Senior Structural Design Engineer	S/he shall have a minimum Graduate degree in Civil / Structural Engineering with 15 years of professional experience and with 10 years' working experience in the design of high rise buildings comprising pile foundations, RCC and Steel structures. Previous experience in similar work in a coastal environment will be an advantage. Fully conversant with BNBC code and its practice, energy efficient / green built structure and its designing.	9	1 (Incremental, and/or Intermittent)

4	Senior Environmental Specialist.	S/he shall have a minimum Graduate degree in Environmental Science /Engineering /Planning or other relevant field, with 15 years of professional experience including 10 years' working experience in carrying out environmental impact assessments related building work in environmental study & implementation of environment plan including preparation of EIA, EMP, reports etc. The Expert should be well conversant with laws relating to land acquisition, state procedures in implementation plans & framework. The Expert/s should also be well conversant about national / the World Bank environmental policies. The Expert should be well conversant with laws relating to land acquisition, state procedures in implementation plans & framework. Experience in M&E of environmental aspects of World Bank or any other donor funded project will be an added advantage. S/he will be computer literate and familiar with relevant environment safeguard requirements for this assignment.	3	1 (Incremental, and/or Intermittent)
5	Senior Procurement Specialist	S/he shall have a minimum graduate in Engineering, preferably in civil engineering, with 15 years of procurement experience including 5 years at managerial level in public sector with exposure to donor funded projects.	4	1
		Total Man-months	28	

9.2 List of Key Experts for Assignment B (Time Based contract), tentative input

Sl. No	Expert position	Educational qualification & experiences	Total Man-month	Indicative Number of positions
1	Team Leader	S/he shall have a minimum Graduate degree in Civil Engineering and membership of a recognized professional institution. S/he shall have 20 years of overall professional experience in construction management, including leading and managing a construction team for civil works, planning and design. S/he shall have experience of at least 10 years in construction management of high rise building and steel structure, project management, coordination on design & drawings, contract management, quality control, monitoring, reporting & top supervision of similar type of projects. Previous experience in design, construction and/or supervision of VICs will be an advantage. S/he will act as Team Leader of the Consultant, as well as the Engineer's Representative of the project, being responsible for managing the project and contracts for timely completion of the project with quality in both Assignment A and Assignment B.	18	1 (Full time)
2	Senior Structural Design Engineer	S/he shall have a minimum Graduate degree in Civil / Structural Engineering with 15 years of professional experience and with 10 years' working experience in the design of high rise buildings comprising pile foundations, RCC and Steel structures. Previous experience in similar work in a coastal environment will be an advantage.	2	1 (Incremental, and/or Intermittent)

		Fully conversant with BNBC code and its practice, energy efficient / green built structure and its designing.		
3	Senior Construction Supervision Engineer	S/he shall have a minimum Graduate degree in Civil Engineering with 15 years of professional experience and with 10 years working experience in the supervision, monitoring and contract management of civil works. Ensure quality control, workmanship, and timely completion of works.	12	1
4	Senior Environmental and Social Specialist	S/he shall have a minimum Graduate degree in Environmental Science/Engineering/Planning or other relevant field, with 15 years of professional experience including 10 years' working experience in carrying out environmental impact assessments related building work in environmental study & implementation of environment plan including preparation of EIA, EMP, reports etc. The Expert should be well conversant with laws relating to land acquisition, state procedures in implementation plans & frame- work. The Expert/s should also be well conversant about national / the World Bank environmental policies. The Expert should be well conversant with laws relating to land acquisition, state procedures in implementation plans & frame- work. Experience in M&E of environmental aspects of World Bank or any other donor funded project will be an added advantage. S/he will be computer literate and familiar with relevant environment safeguard	2	1

		requirements for this assignment.		
		Total Man-months	34	

Estimated inputs of Key experts.

(a) During Assignment A (Lump-sum Contract) = 28 Person-months; and

(b) During Assignment B (Time-based Contract) = 34 Person-months.

Non-Key Experts for Assignment A and B.

In addition to key experts, the following will be required intermittently to deliver the services in accordance with the TOR for execution of assignment A and B. Indicative non-key staff is listed below as an illustration. Non-key experts will not be evaluated individually during evaluation of technical proposal. The consultants are encouraged to estimate and propose their own non-key experts. The inputs of these non-key staff should be calculated in such a way that, all the responsibilities envisaged in the scope of work are completely met:

Sl. No	Non-Key Expert position	Educational qualification & experiences	Total Man-month	Indicative Number of positions
1	Construction Supervision Engineer.	S/he shall have a Minimum Bachelor's degree in Civil Engineering with 10 years of professional experience including 5 years of working experience in the supervision of different types of civil works.	72	4 (Incremental, and/or Intermittent)
2	Design /Structural Engineer.	S/he shall have a minimum Bachelor's degree in Civil Engineering with 10 years of professional experience including 5 years of working experience in the design of multistoried buildings.	10	2
3	Electrical Engineer	S/he shall have a minimum Bachelor's degree in Electrical Engineering with at least 10 years of professional experience including 5 years of working experience in the design, selection and installation of	6	1

Sl. No	Non-Key Expert position	Educational qualification & experiences	Total Man-month	Indicative Number of positions
		electrical /electro-mechanical devices or similar types of works. Assist in testing transformer and all other related electromechanical equipment. Carry out all other tasks and activities as needed.		
4	Mechanical/ Utility Services Engineer	S/he shall a minimum bachelor's degree in mechanical engineering with at least 10 years of professional experience including 5 years of working experience in the design and installation of mechanical / electro-mechanical devices in similar types of works. Experience in the design of VICs would be an added advantage. Experience in HVAC, different service including sanitary, water supply connections and different utility connections for getting services.	6	1
5	Junior Architect	Minimum bachelor's degree in architecture with at least 10 years of relevant experience. At least 3 years experiences in architectural designing & planning in similar nature of projects to provide enough flexibility to integrate future requirements. Having also experienced in energy efficient architectural designs that reflect green building principles following the most up to date standards etc.	4	1
6	Water Supply and Drainage Engineer.	Minimum bachelor's degree in civil engineering with 10 years of relevant experience in the design of water supply, roads, bridges, culverts and drainage structures, etc.	3	1 (Incremental, and/or Intermittent)
7	Field Environmental Engineer	S/he shall have a minimum graduate degree in Environmental Engineering with 10 years of professional experience including 5 years of working experience in the supervision and execution of environmental components in the field.	6	1
8	Social cum Communication and	S/he shall have a minimum Graduate degree in Social Science/Engineering/Planning or other relevant field, with 10 years of professional experience including 5	6	1

Sl. No	Non-Key Expert position	Educational qualification & experiences	Total Man-month	Indicative Number of positions
	Stakeholder Engagement Expert	years' working experience in carrying out social impact assessments (SIA) related to building work & implementation of SIA reports etc. The Expert should be well conversant with laws relating to land acquisition, state procedures in implementation plans & frame- work. The Expert/s should also be well conversant about national / the World Bank social safeguard polices. S/he will be computer literate and familiar with relevant environment and social safeguards requirements for this assignment.		
9	Quantity Surveyor and Estimator(Civil , Electrical & Mechanical)	S/he shall have a minimum Diploma in Engineering with 10 years of relevant experience. At least 8 years' experience in surveying and estimation. Well conversant in preparing cost estimates and its analysis based on standard and market value. Carry out all other tasks and activities as needed.	10	2 (Incremental, and/or Intermittent)
10	Quality Control Engineer	S/he shall have a minimum Graduate degree in degree in Civil Engineering with 10 years of relevant experience. At least 5 years of working experience in quality control of construction materials.	10	1
11	Site Supervisors (Civil) (4 nos, 18 months each)	S/he shall have a minimum Diploma in Civil Engineering with 10 years of relevant experience. At 5 years of working experience in field supervision, monitoring, quality control, verifying test results and ensure completion of works based on the items stated in the BoQ.	72	4
12	CAD Operator	S/he shall have a minimum Diploma in Civil Engineering /Architect with 10 years of relevant experience. At least 5 years' experience in project drawings. Carry out all other tasks and activities as needed.	15	1

Sl. No	Non-Key Expert position	Educational qualification & experiences	Total Man-month	Indicative Number of positions
14	Office cum Accounts Manager	S/he shall have a minimum Graduate degree in Accountancy or relevant field, with 10 years of professional experience including 5 years' working experience as office Manager and maintaining office accounts.	29	1
		Total Man-months	249	

11. REPORTS, DELIVERABLES AND COMPLETION SCHEDULE

Table 1 describes the timeline and format of the deliverables under each Assignment.

Table 1. List of deliverables and schedule of completion

Phase	Document to Submit (English)	Number of hard copies	Electronic file format	Submission after signing the Contract
Assignment A (Lump sum contract)	<u>Task A.</u>			
	Quality Plan	3	PDF	T ₀ + 1 month
	Inception Report	3	PDF	T ₀ + 1 month
	Design Basis Report	3	PDF	T ₀ + 1 month
	(1) Cadastral/Topographic survey	3	PDF	T ₀ + 3 months
	[2] Geotechnical Reports	3	PDF	T ₀ + 3 months
	[3] Preliminary Design Presentation, including 3-D rendering/views of buildings where appropriate and outline costs	-	PPT	First week of 6th month
[4] Draft Detailed Design Drawings	3	PDF	T ₀ + 10 months	

	[5a] Final Design report	3	PDF	T ₀ + 11 months
	[5b] Final Detailed Design Drawings	5	PDF/ACAD	T ₀ + 12 months
	[6] Specifications	5	PDF	T ₀ + 11 months
	(7) Engineering Estimate	5	MS Excel,	T ₀ + 12 months
	(8) Bill of Quantity (BoQ)		MS Word, PDF	
	Preparation of Tender Documents and invitation of tenders for works	<i>As required</i>	PDF	T ₀ + 14 months
	Attend pre-bid meetings and prepare meeting minutes and prepare response in along with client.	<i>As required</i>		
	Technical expert inputs to the Tender Evaluation Report and all related activities till signing of Contract(s) for civil works	<i>As required</i>	PDF/Word/ Excel	T ₀ + 17 months
Assignment B (Time based contract)	Task B.: Construction Supervision, and Contract Management.			
	Quality assurance manual	<i>As required</i>	PDF	T ₀ + 20 months
	Monthly progress reports	<i>As required</i>	PDF	Each month
	Certificates on quality of works	<i>As required</i>	PDF	On completion of each work
	Project cash flow projections versus actual disbursements			PDF
	Review as built drawing from the contractors and submit 3 copies to	3		<i>On completion of each contracts</i>

the client			
Detailed annual reports during Assignment A & Assignment B Contracts	<i>As required</i>	PDF	At the end of each year
Project Completion report	<i>As required</i>	PDF	T ₀ + 29 months
O&M manuals	<i>As required</i>	PDF	T ₀ + 29 months

T₀ : Date of Commencement of Service

11.2. Additional Reporting Requirement for Assignment B – Construction Supervision & Management and ESMP Implementation

- (a) Immediately notify the Client of any failure by the Contractor to comply with its SEA and SH obligations.
- (b) Immediately notify the Client of any allegation, incident or accident, which has or is likely to have a significant adverse effect on the environment, the affected communities, the public, Client’s Personnel, Contractor’s Personnel or Experts. In case of SEA and/or SH, while maintaining confidentiality as appropriate, the type of allegation (sexual exploitation, sexual abuse or sexual harassment), gender and age of the person who experienced the alleged incident should be included in the information. The Consultant shall provide full details of such incidents or accidents to the Client within the timeframe agreed with the Client.
- (c) Immediately inform and share with the Client notifications on E&S incidents or accidents provided to the Consultant by the Contractor, and as required of the Contractor as part of the Progress Reporting.
- (d) Share with the Client in a timely manner the Contractor’s E&S metrics, as required of the Contractor as part of the Progress Reports.

12. ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT

In carrying out the assignment, the consultant will be guided by the BEST Project’s E&S documents (ESMF, LMP, SEP, RPF, ESCP, ESA, etc.). The overall goal, at a minimum, shall be integrating environmental protection, ensure occupational and community health and safety of the workers, actively promote gender equity and enforce a Code of Conduct for SEA/SH risk management and mitigation including community health and safety. Consultation and stakeholder engagement will be

ensured all through the assignment from preparation to implementation and feedbacks from the stakeholders will be integrated in the project design and implementation where relevant.

13. Code of Conduct.

For supervision of civil works contracts: All experts and support staff of the Consultant should:

- (i) Comply with applicable laws, rules, and regulations
- (ii) Comply with applicable health and safety requirements to protect the local community (including vulnerable and disadvantaged groups), the Consultant's Experts, the Client's personnel, and the Contractor's personnel, including sub-contractors and day workers (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment)
- (iii) Must not use of illegal substances.
- (iv) Must follow Non-Discrimination in dealing with the local community (including vulnerable and disadvantaged groups), the Consultant's Experts, the Client's personnel, and the Contractor's personnel, including sub-contractors and day workers (for example, on the basis of family status, ethnicity, race, gender, religion, language, marital status, age, disability (physical and mental), sexual orientation, gender identity, political conviction or social, civic, or health status).
- (v) Must show respect while Interactions with the local community(ies), members of the local community (ies), and any affected person(s) (for example to convey an attitude of respect, including to their culture and traditions).
- (vi) Must prohibited Sexual harassment (for example to prohibit use of language or behavior, towards women and/or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate).
- (vii) Must avoid Violence, including sexual and/or gender-based violence (for example acts that inflict physical, mental or sexual harm or suffering, threats of such acts, coercion, and deprivation of liberty
- (viii) Must prohibited Exploitation including sexual exploitation and abuse (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading behavior, exploitative behavior or abuse of power).
- (ix) Must Protect of children (including prohibitions against sexual activity or abuse, or otherwise unacceptable behavior towards children, limiting interactions with children, and ensuring their safety in project areas).
- (x) Should ensure Sanitation requirements (for example, to ensure workers use specified sanitary facilities provided by their employer and not open areas).

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- (xi) Must avoid of conflicts of interest (such that benefits, contracts, or employment, or any sort of preferential treatment or favors, are not provided to any person with whom there is a financial, family, or personal connection).
 - (xii) Protection and proper use of property (for example, to prohibit theft, carelessness or waste).
 - (xiii) Duty to report violations of this Code.
 - (xiv) Non-retaliation against personnel who report violations of the Code, if that report is made in good faith.

Each Expert shall sign indicating that they have:

- (i) received a copy of the code.
- (ii) had the code explained to them.
- (iii) acknowledged that adherence to this Code of Conduct is a condition of employment.
- (iv) understood that violations of the Code can result in serious consequences, up to and including dismissal, or referral to legal authorities.