

REQUEST FOR EXPRESSIONS OF INTEREST (CONSULTING SERVICES – INDIVIDUAL)

COUNTRY: GOVERNMENT OF THE REPUBLIC OF TAJIKISTAN

NAME OF PROJECT: OBIGARM NUROBOD Rd PROJECT LONG BRIDGE and APPROACHES

Grant No.: S0309A

Assignment Title: Project Implementation Support – **Geotechnical Engineering Specialist**

Reference No.: AIIB/SF/ONRdPLB/PIU/IC-06

The Government of the Republic of Tajikistan has received financing from the Asian Infrastructure Investment Bank (AIIB) toward the cost of the Obigarm Nurobod Rd Project Long Bridge and approaches, and intends to apply part of the proceeds for consulting services.

The overall objective of the consulting services (“the Services”) includes the followings:

The overall objective of the assignment is to provide the **technical support to the PIU** during preparation of the AIIB funded Section 3 of the Works for the Long Bridge and Approaches. The technical support will require the input from an individual, independent senior geotechnical specialist with wide experience in the design and construction of foundations of major cable-based long span bridges, including suspension bridges, cable stayed bridges and as well as other major types of long bridges. The expert shall also have experience in geotechnical engineering for highway works, including for the stability of slopes. The specialist selected for the required technical support will be required to carry out a detailed review of the work outputs done by the an **External Design Consultant** earlier selected and to provide written reports on the feasibility studies for the bridge conceptual designs, options study, design for ground investigations, geotechnical investigation reports, preliminary foundation designs for selected option, geotechnical designs for the approach roads, works and performance specifications, drawings and other technical and Tender Documents for **Design, Build, Operate and Maintain (DBOM) contract format using output and performance indicators**.

The detailed **Terms of Reference (TOR)** for the assignment is attached as an Appendix 1.

The Ministry of Transport/Projects Implementation Unit for Roads Rehabilitation now invites Expression of Interest (EOI) from eligible “Consultants” to indicate their interest in providing the services fulfilling requirements of TOR. Interested Consultants should provide their latest CV with information demonstrating that they have the required

qualifications and relevant experience to perform the Services. The broad shortlisting criteria are as follows:

Qualifications:

- MSc (Master's degree) or higher education in a recognized University with major in in geotechnical engineering or equivalent
- 20 years' experience in geotechnical engineering investigation and design
- Specific expertise in the design and interpretation of ground investigations, design of foundations for major bridge structures, and in slope stabilization for highways projects.
- Proven experience in geotechnical and soil mechanics, standards and codes, knowledge of the newest and most advanced software tools for design of bridge foundations.
- Fluent knowledge of English (writing, speaking and reading) is a requirement;

The attention of interested Consultants is drawn to Section II, paragraph 4.4, and paragraph 4.9 of the AIIB's "Procurement Instructions for Recipients" June 2, 2016, setting forth the AIIB's policy on conflict of interest and eligibility.

A consultant will be selected in accordance with the AIIB Procurement Policy and its associated Interim Operational Directive on Procurement Instructions for Recipients. AIIB's Policy on Prohibited Practices will apply to all contracts.

Expression of Interest must be delivered in a written form along with a CV to the address below in person, or by e-mail by **January 20 , 2023**. EOI arriving after the deadline will not be considered. The copy of your CV shall be incorporated into a PDF document.

Attn: Mr. N. Arabzoda, Executive Director
Project Implementation Unit for Roads Rehabilitation
Ministry of Transport of the Republic of Tajikistan
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Dushanbe, 734042, Tajikistan
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Appendix 1

Terms of Reference for Geotechnical Engineering Specialist for Section 3 Obigarm to Nurobod – Long Bridge and Approaches

(January 02, 2023)

1. BACKGROUND

The Government of Tajikistan, represented by the Ministry of Transport, is constructing a 75 km long alternative alignment of the existing M41 highway connecting the northeast region of Tajikistan and the Kyrgyz Republic, located between Obigarm (km 72) and Nurobod (km 158). The existing highway will be inundated by the reservoir of the Rogun Hydropower Project (HPP), currently under construction.

The M41 highway is of regional importance, reflected by its position on Central Asia Regional Economic Cooperation (CAREC) Corridors 2, 3 and 5.

The M41 highways project is divided into three sections:

Section 1: Obigarm to Tagikamar (km 0+000 to km 30+217)

Sub-Section 1: Javoni – Kandak

Sub-Section 2: Gazakyon – Sebnok (Lugar)

Sub-Section 3: Hakimi - Siyohgulak

Section 1 is approximately 30 km long and includes Bridges No. 1 through No. 6, Tunnel No.1 (Kandak Tunnel, 1.6 km), Tunnel No.2 (Karagach Tunnel, 1.7 km), and local access roads of 30 km.

Section 1 is funded by the Asian Development Bank (ADB) and by the OPEC Fund for International Development (OFID).

Section 2: Tagikamar to Nurobod (km 30+217 to km 75+600, less the bridge in Section 3)

Section 2, Sub-Section 4: Mudzhihrv – Alihodzha

Section 2, Sub-Section 5: Alihodzha – Tuthor

Section 2, Sub-Section 6: Tuthor – Kabudiyon ((Samsolik)

Section 2, Sub-Section 7: Kaboudiyon – Humdon

Section 2 is approximately 44 km long and includes Bridges No. 7 through No. 13, Tunnel No. 3 (Tagikamar Tunnel, 2.6 km), local access roads 40 km, and a temporary long bridge over the Rogun HPP Reservoir at Darband over the Surhkhob River.

Section 3: Bridge over Rogun Reservoir (km 72+900 to km 74+303)

Section 3 includes design and construction of about 760-meter-long permanent bridge across the Rogun Reservoir.,

Section 3 is proposed to be funded by the Asian Infrastructure Investment Bank (“the Bank” or “AIIB”), supported by a grant financing for the project preparation.

The Project is a government priority, as reflected by its inclusion in the National Development Strategy. The project is also consistent with the CAREC Transport and Trade Facilitation Strategy 2020 and will contribute to achieving goals three (good health and well-being) and nine (industry, innovation and infrastructure) of the UN sustainable development goals.

The Ministry of Transport (MoT or “the Client”), which is responsible for the administration of the Republican Road Network of Tajikistan, will be in charge of overall project implementation.

To manage projects in the road, sector the **Projects Implementation Unit for Roads Rehabilitation (PIURR)** has been established by the decree of the Government of Tajikistan under the MoT. In addition, **a dedicated Project Implementation Unit (PIU) for the management of the Section 3, has been established under the PIURR.**

2. OBJECTIVES

The overall objective of the assignment is to provide the **technical support to the PIU** during preparation of the AIIB funded Section 3 of the Works for the Long Bridge and Approaches. The technical support will require the input from an individual, independent senior geotechnical specialist with wide experience in the design and construction of foundations of major cable-based long span bridges, including suspension bridges, cable stayed bridges and as well as other major types of long bridges. The expert shall also have experience in geotechnical engineering for highway works, including for the stability of slopes. The specialist selected for the required technical support will be required to carry out a detailed review of the work outputs done by the an **External Design Consultant** , earlier selected and to provide written reports on the feasibility studies for the bridge conceptual designs, options study, design for ground investigations, geotechnical investigation reports, preliminary foundation designs for selected option, geotechnical designs for the approach roads, works and performance specifications, drawings and other technical and Tender Documents for **Design, Build, Operate and Maintain (DBOM) contract format using output and performance indicators.**

The Specialist (otherwise defined as the Consultant under Section D3 of the Contract, which means the person who will provide the services under the Contract for provision of the services of the Geotechnical Engineer Specialist), will liaise closely with the other Project Support Consultants, who are assisting the PIU, with the overall implementation of the project, but on a part time basis.

The Specialist will be required to familiarize themselves with all technical documents related to the Project.

Through the engagement of the Specialist, the Client will be introduced to the best international practice in the field of geotechnical engineering for long span bridges and for highways. In that respect, the Specialist will prepare and present, from time to time, slide presentation of various aspects of planning, design and implementation of foundations for long bridges specifically related to cable type of bridges, and for slope stabilization.

3. SCOPE OF WORK

Further to the above Objectives, the Specialist will focus on the following activities, but not limited to:

- a) Review and provide comments on the results of previous geotechnical studies related to the project area.
- b) Review and provide written comments on the proposed foundation options and slope stabilization measures to be considered during the Options Study, which shall include at least three main bridge options (balanced cantilever, cable-stay, extra dose etc.) as well as a series of relevant sub-options for each bridge type (deck materials, span arrangements, foundation types, pylon height etc.).
- c) Review and provide written comments on the proposed geotechnical, hydro-geotechnical and seismic design criteria, standards, work and performance specifications and design methodologies to be applied for the bridge and approaches.
- d) Review and provide written comments on the proposals for detailed geotechnical, hydro-geotechnical and seismic investigations to be carried out in Phase 2 of the design of the long bridge and approaches, including review of the TORs for such geotechnical and other investigations to determine if they will provide sufficient factual information for both the Preliminary Design as well as for tendering for the planned DBOM works contract using output and performance parameters for fully finished milestones. The required measures for the reservoir banks erosion control will need to be also reviewed and commented.
- e) Review and provide written comments on the results from the ground investigations completed for the project.
- f) Review and provide written comments on the draft Options and Feasibility Study Report from a geotechnical point of view, including comments on the interpretation of the geotechnical information obtained from the ground investigations, the methodology used by the External Design Consultant in assessing the technical feasibility, ease of construction, time for construction, etc. and the estimated cost of each option presented in the Draft and Final FS with proposed and recommended option for the long bridge.
- g) Identify any specific geotechnical issues will be addressed by the External Design Consultant during the preliminary design phase, including identification of any potential geotechnical hazards, potential constraints to the construction and any necessary measures for climate resilient design and long-term performance.
- h) Review and provide written comments on the geotechnical aspects of Preliminary Design of the selected option, including the bridge foundation design, slope stability and earthworks design, including on the extent to which it provides a feasible basis for contracting the works using a DBOM contracting. This includes, but not limited to the level of detailed and provided works specifications, structural calculations and considerations, , climate resilience design, major foundation and slope stability works and protection of abutments/ towers/pylons, riverbanks erosion protection works, etc., typical drawings and specific instructions related to the type of bridge and its foundations and the bridge approaches, selected for implementation.
- i) Review and provide written comments on the External Design Consultant's proposals for output and performance-based criteria and the associated implementable and measurable milestones and their payment schedule within the overall lump sum cost for the bridge, as they relate to foundation and geotechnical works.
- j) Review and provide written comments on the geotechnical aspects of the Employer's Requirements and other technical specifications as well as the proposed output and performance-based criteria for measurement, acceptance/remedies and payment of the finished geotechnical works of the long bridge and its approaches.
- k) Review and provide written comments on the proposed schedule for construction as it will impact foundation works and earthworks, including milestones in timely

and substance fashion, taking into account the anticipated water levels fluctuation during the construction as a result of the completion of the Rogun Dam.

- l) Review and provide written comments on the Project Risks Matrix developed by the External Design Consultant and introduce additional geotechnical risks that may need to be addressed, if appropriate.
- m) Review and provide written comments on the geotechnical aspects of the draft Preliminary Design Report and associated documentation, making sure that the outputs are prepared to the required quality, leading to a successful Tendering of the Project, with all required documentation for procurement and implementation of the associated works of the Project.
- n) Review and provide written comments on the geotechnical aspects of the final Preliminary Design Report and associated documentation, confirming that the received comments and suggestions by the Project peers have been fully incorporated.
- o) Review and provide written comments of the geotechnical Technical Documentation required for Tender Documents for DBOM contract.

4. IMPLEMENTATION ARRANGEMENTS

The assignment is expected to start in December 2022 and will have a **duration of 7 months**. The Specialist shall perform his services remotely from the Specialist's home office and in the Client's offices in Dushanbe, Tajikistan, depending on the situation related to the COVID 19 pandemic limitation of movement and flights.

The total work days are calculated as:

- At home office: 10 working days
- In Dushanbe office: 18 working days
- Traveling: 2 working days

The services will be provided, during the course of the project implementation/preparation. The exact input during each month will depend on the requirements of the Project. At end of each month, the Specialist shall provide for PIU management approval and payment a monthly Invoice specifying the work done and time provided. Travelling days directly from the Specialist's home office to Dushanbe are considered as working days.

The Specialist will use its own necessary computer hardware and software required to deliver the services.

During visits to Tajikistan, the Client will provide the Specialist with appropriate furnished office space within the PIU. These facilities will be provided free of charge by the Client. The a per diem for accommodation and subsistence, as well the costs of international travel, will be reimbursed by the Client in accordance with the Contract, subject to prior approval by the Client of the mission/s to Dushanbe. In addition, the Client will support and facilitate issuing of required visa for visit to Tajikistan.

All available Project information including copies of critical documentation such as outputs from previous studies will be made available to the Specialist by the PIU. All received Project material belongs to the Client and cannot be shared with any other person of institution. Prohibited sharing will result in breach of the contract.

5. REPORTING AND DELIVERABLES

The following reports shall be prepared by the Specialist during the course of the Services:

- a) A brief **Inception Report**, setting out the proposed approach to the Project, the inputs foreseen, the key challenges to be addressed during the assignment;
- b) Reviews and Reports on specific issues indicated in the Section 3 above (Scope of Works, items “a” to “o”); and
- c) Final Report, including a review of all tasks undertaken by the Specialist, along with recommendations for any further support to be provided for under the project.

NOTE:

The Specialist shall report to the PIU's nominated representative on all aspects of his assignment. The Specialist shall liaise closely with the PIU Project Support Consultant as necessary.

The Specialist will provide deliverables addressing in detail all tasks as specified in section 3 of this Terms of Reference. All deliverables will be prepared and delivered by the Specialist in the English language. and copied to AIIB PTL

All Project reports issued by the Specialist shall be reviewed and approved by the PIU in a shortest possible time. A period of up to two calendar weeks shall be allowed for this review and approval.

6. PROFESSIONAL QUALIFICATION OF THE SPECIALIST

The Specialist will have recognized/proven high-level international experience in the design of ground investigations, foundations for long span bridge structures of a comparable size and scope, and for geotechnical works for highways. In addition, he/she will have proven and evident experience in providing independent technical, financial and operational opinions and advice of high value to Clients.

The Specialist will have at minimum the following professional academic credentials, experience, and qualifications:

- BSc, preferably MSc (Master's degree) from a recognized University with major in geotechnical engineering or equivalent.
- 20 years' experience in geotechnical engineering investigation and design.
- Specific expertise in the design and interpretation of ground investigations, design of foundations for major bridge structures, and in slope stabilization for highways projects.
- Proven experience in geotechnical and soil mechanics, standards and codes, knowledge of the newest and most advanced software tools for design of bridge foundations.
- Fluent knowledge of English (writing, speaking and reading).