

GOVERNMENT OF MONGOLIA

MINISTRY OF ROAD AND TRANSPORT

**Mongolia Transport Connectivity and Logistics Improvement Project (P174806)**

**TERMS OF REFERENCE**

for

**Supervision Consulting Services (SC)**

**September 2024**

**TERMS OF REFERENCE**

**SUPERVISION CONSULTING SERVICES (SC)**

1. **INTRODUCTION**
2. **Background**. The Government of Mongolia has received financing from the International Bank for Reconstruction and Development (IBRD) in the form of a loan in the amount of US$100 million and from the International Development Association (IDA) in the form of a credit in the amount of US$10 million towards the cost of the Mongolian Transport Connectivity and Logistics Improvement Project (MTCLIP). The Implementation Agency (IA) is the Ministry of Road and Transport (MRT). A Project Management Office (PMO) has been established by MRT, responsible for the day-to-day implementation of the project.
3. **The Project development objective (PDO)** is to improve climate-resilience transport connectivity and logistic efficiency for the meat value chain in Mongolia.
4. Achievement of the PDO will be measured by the indicators set forth below. Each indicator is described in detail within the Project's Results Framework.
5. Improved transport connectivity: Travel time on project corridors, with sub-indicators measuring travel time along targeted national and local roads.
6. Improved logistics for the meat value chain: Logistics cost on identified corridors associated with the meat value chain.
7. Improved climate resilience of the road network: Road users with access to climate-resilient roads along the project corridors.
8. Improved citizen engagement: Road users are satisfied with road transport and logistics and related services in selected transport corridors.
9. Reduced gender gap in women’s participation in livestock commercialization: Share of transport and logistics platform female herder users relative to the total number of active herder users.
10. The MTCLIP project consists of a complementary set of interventions to address the three major drivers of logistics costs in the meat value chain: poor physical connectivity, badly situated and/or inefficient logistics hubs, and information asymmetry among actors in the supply chain, with consideration to gender gaps in information access.
11. The project activities encompass the following components related to this scope of consulting service, including:

**Component 1.** Infrastructure investments. This component will improve transport connectivity for a more efficient meat supply chain. The investments and activities focus on roads in aimags with the highest concentrations of livestock, where freight flows for meat are also concentrated. The interventions will be based chiefly on the recent profile of the state road network in the selected aimags as determined by the International Roughness Index (IRI). The interventions will also focus on last-mile connectivity to complete the missing links in the meat value chain. To ensure longer-term benefits, the component will support the development of the state road asset management (RAM) framework that is expected to be adopted as part of the national government’s process of transport investment planning and management. The activities to be financed under this component are listed below:

**Subcomponent 1.1.** Results-based maintenance of key sections of the strategic network. This subcomponent will finance the maintenance of the state road network 361 km of roads and selected bridges now in poor condition.

**Subcomponent 1.2.** Last-mile connectivity for local herders.This subcomponent will finance upgrades to approximately 51 km of high-priority local road sections to improve last-mile connectivity.

1. The following selected road and bridge rehabilitation, construction, and maintenance works under Component 1 will be supervised by the Supervision Consultant (SC) as described in this Terms of Reference (TOR). MRT intends to organize selected road and bridge maintenance works into the following packages, each with its own contract conditions, as shown in Table 1. The locations of the roads and bridges are provided in the Annex 1.

Table 1: Anticipated Packaging of the Project Road and Bridge maintenance works

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| № | Component 1. Infrastructure Investments Works | | Procurement Category and Method | Contract condition | Expected Timeline for Implementation |
| **1.1. Results-based upgrading and maintenance of key sections of the strategic road network** | | | | | |
| 1 | Package 1. Eastern and Western Regional Road Network Rehabilitation works | A0501 Ulaanbaatar-Undurkhaan 68 km road rehabilitation | Works (Design+Build)  Open+ International + RFP | The Design and Build Contract. /FIDIC Conditions of Contracts for Plant & Design-Build for Electrical & Mechanical Plant & Building & Engineering Works Designed by the Contractor (“Yellow Book”), Second Ed. 2017/ | Q12025 to Q12027 |
| A0302 Arvaikheer - Bayankhongor 35km road rehabilitation | Q12025 to Q12027 |
| 2 | Package 2. Western Regional Road Network rehabilitation works | A0301 Ulaanbaatar-Arvaikheer 105 km road rehabilitation | Works (Design+Build)  Open+ International + RFP | The Design and Build Contract. /FIDIC Conditions of Contracts for Plant & Design-Build for Electrical & Mechanical Plant & Building & Engineering Works Designed by the Contractor (“Yellow Book”), Second Ed. 2017 | Q12025 to Q12027 |
| A0602 Kharkhorin-Tsetserleg 40km road rehabilitation | Q12025 to Q12027 |
| A0603 Tsetserleg-Tosontsengel 50 km road rehabilitation with Gichgene River 90m bridge, Belkhi River 30.2m bridge and Khanui River 75.3m bridge maintenance works | Q12025 to Q12027 |
| 3 | Package 3 | A0502 Undurkhaan - Choibalsan 50 km road rehabilitation | Works  Open+ International + RFB | Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer,FIDIC (“Red Book”), Second Ed. 2017 | Q12025 to Q12027 |
| 4 | Package 4 | A0902 Bulgan - Murun 13km road rehabilitation with OPBRC | Works with OPBRC  Open + National + RBP | Output-and Performance-Based Road Contracts (OPBRC), World Bank, 2023 | Q22025 to Q22030 |
| **1.2. Last mile connectivity for local herders** | | | | | |
| 1 | Package 5 | Last mile connectivity 16 km new road construction of Yesonzuil soum, Uvurkhangai Province | Works  Open+ National + RFB | Small work contract, World Bank, 2021 | Q32025 to Q32027 |
| 2 | Package 6 | Last mile connectivity 35 km new road construction of Bulgan soum, Arkhangai Province | Works  Open+ International + RFB | Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer,FIDIC (“Red Book”), Second Ed. 2017 | Q32025 to Q32027 |

1. Procurement of the Project works and consulting services will be conducted through the procedures as specified in the World Bank’s Procurement Regulations for IPF Borrowers November 2020 (“Procurement Regulations”).

# **II.** **OBJECTIVES OF THE ASSIGNMENT**

1. The Client, Ministry of Road and Transport of Mongolia (the “Employer” in the civil work contracts) is planning to engage a Consultant (the “Engineer” in the civil works contracts) to support the Client in implementation and supervision of road construction and maintenance activities financed by MTCLIP. The primary objective of the Consultant is to ensure that the construction, rehabilitation, and maintenance of project roads are completed in accordance with the Employer’s requirements and contractual agreements. This includes ensuring that the contractor adheres to the approved design criteria and standards for engineering design, to the approved designs during construction, construction timelines, Fédération Internationale Des Ingénieurs-Conseils (FIDIC) terms, relevant World Bank (Bank) policies, as well as with the relevant local legislation on constructions, while managing risks effectively. The Consultant will ensure that construction and maintenance activities are carried out in full compliance with environmental and social safeguard requirements set forth by the Bank’s Environmental and Social Standards and Guidelines and by the Government of Mongolia.
2. The Consultant will be engaged according to Bank's Procurement Policies and Rules for consultancy services.
3. The overall objective of the services is to:
4. provide supervision services for design, construction, maintenance, contract administration of road and bridge construction, rehabilitation and works;
5. ensure that all works are carried out in full compliance with the employer’s requirements, approved engineering design, technical specifications and other contract documents;
6. encourage the development of effective road maintenance practices and procedures by working closely with the civil works contractors, Project Management Office (PMO), and MRT in carrying out road rehabilitation works on the roads;
7. ensure full compliance with environmental and social safeguard requirements set forth by the Bank’s Environmental and Social Standards, in a manner acceptable to the Bank, including road safety, and by the Government of Mongolia;
8. support the Employer to obtain necessary statutory clearances on a timely basis.
9. The Consultant’s duties will cover the following tasks:
   1. These Terms of Reference (TOR) for Consultancy Services outline the CSC services to be provided by the Consultant, defining the rights and duties for 9 independent civil works contracts, including Package 1 (with 2 lots), Package 2 (with 3 lots), Package 3, Package 4, Package 5, and Package 6 which will be implemented in accordance with the respective contract conditions shown in Table 3.
   2. Monitoring and reporting pursuant to the relevant Loan Agreement and relevant Environmental and Social Policies.
10. The Consultant will be responsible for the following key activities:
11. Design Review: Evaluate and approve the contractor’s design submissions.
12. Site Supervision: Ensure that construction activities are carried out as per the approved design and specifications.
13. Quality Assurance: Implement and maintain a rigorous QA/QC program.
14. E&S Monitoring: Ensure the project is implemented as per the Bank E&S Standards.
15. Progress Reporting: Provide regular and accurate reports on project progress, highlighting any risks or issues.
16. Contract Administration: Ensure that all contractual obligations are met by both the contractor and the client.
17. Stakeholder Coordination: Liaise with the client, contractor, and other stakeholders to facilitate smooth

# **SCOPE OF CONSULTING SERVICES**

1. **General scope:** The Consultant shall establish a team and follow detailed construction supervision procedures based on sound international practice, to monitor the completion of the project within the agreed programme and budget and to the quality standards and Social Safeguard and Evironmental provisions stipulated in the contracts. The Consultant shall perform the duties and authority of “the Engineer” as specified in or necessarily implied from the works contracts as well as administer and manage situations in accordance with the works contracts, taking due regard of all relevant circumstances. The Consultant shall perform his duties or act:
2. exercise every possible care to protect the interest of the Client, accordance with General Condition of the Civil Work Contract, including safety and environmental considerations.
3. ensure that the Contractors have secured all relevant permits necessary to start works, or specific works process.
4. ensure that the Contractors comply with all relevant Environmental and Social Standards, in a manner acceptable to the Bank during the works.
5. perform the services in accordance with the laws and any other instruments having force in Mongolia as may be issued and in force from time to time, taking into account the loan agreement (between the Bank and the Client) requirements.
6. note that the Client is under obligation to seek Bank’s concurrence before agreeing to or implementing any modification or waiver of the terms and conditions of the Contract including granting an extension of the stipulated time for performance.
7. The Consultant shall provide the supervision services on the civil works contracts on behalf of the Client, performing the functions of:

* The “Engineer” under the FIDIC Conditions of Contracts for Plant & Design-Build for Electrical & Mechanical Plant & Building & Engineering Works Designed by the Contractor (“Yellow Book”), Second Ed. 2017 for Package 1 and Package 2 of the Project Works
* The “Engineer” under the FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer,FIDIC (“Red Book”), Second Ed. 2017 for Package 3 and Package 6 of the Project Works
* The “Engineer” under the Output-and Performance-Based Road Contracts (OPBRC), World Bank, July 2023 for Package 4 of the Project Works
* The “Engineer” under the Small work contract, World Bank, January 2021 for Package 5 of the Project Works

1. The Consultant shall establish an organizational structure during the construction supervision services in accordance with all requirements for quality assurance (QA), quality control (QC), control of quantities, site supervision on the work progress, analysis of expenses, implementation of OPBRC (during both construction and maintenance periods), and full implementation of environmental criteria as well as working on administrative questions during the construction and Defect Notification Period (DNP).
2. Specific scope: The services shall be provided in four main phases:
3. Inception Phase activities;
4. Supervision during Construction Phase activities;
5. Supervision during DNP and Periodic Maintenance for OPBRC contract of Package 4;
6. Completion of Final Report latest 1 month after expiry of the portion of Defect Notification Period covered by the assignment.
7. **Detailed Description of the Activities during the Inception Phase:** During this period the Services of the Consultant shall include but are not limited to the following tasks:
8. The Consultant shall prepare a complete Quality Assurance and Quality Control (QA/QC) Manual concerning the supervision activities, within 2 months from commencement of Services. The QA/QC Manual shall specify the requirements, procedures and guidelines for all main activities necessary for the Works to run smoothly and shall cover at least the following:
9. Project scope summary;
10. Project organization charts, including names of Key personnel, definition of key interactions and information flow, responsibilities and key functions;
11. Program of all key activities, time and cost management procedures and reporting procedures;
12. Invoicing schedule, Budget and cash flow forecast
13. Deliverables and Reports
14. Communications protocols
15. Risk register
16. Record keeping of correspondence, expenditure, formats of minutes of meeting, site records, instructions;
17. Issued to works contractors and instructions received from the Client;
18. Design review, modification and design approval procedures;
19. Document control procedures (including Contractor’s insurances, reports etc.);
20. All standard forms needed during the supervision activities (e.g. site instructions,
21. Completion certificates, variation orders, formats of reports, hidden works record sheets, form for field inspections and testing, measurement sheets, interim payment certificates and related invoices);
22. Review and approval of detailed construction drawings prepared by the Contractor;
23. Procedure for approval of borrow pits and quarries;
24. Procedure for approval and testing of construction materials, and supplies;
25. Procedures for testing the works by the Contractor;
26. Health, Safety and Welfare protocols;
27. Procedures of measurement of the works executed;
28. Procedures for Performance Certificate and the Taking-over Certificate;
29. Snag list and Defects Liability inspection reports;
30. Data Collection:
31. Collect and review all available documents and data of the project and the project roads, including works’ contracts, employer’s requirements, technical specifications, conceptual drawings, preliminary and detailed designs, contract drawings, available maps, drawings, studies and site conditions, etc;
32. Carry out site assessment, make records (video, images) of the entire Right of Way prior to commencement of construction and then at intervals not exceeding 3 months throughout the Construction Phase, and at 6 monthly intervals thereafter up till the end of the Assignment. These records shall be geographically coded and provided with software to enable remote viewing. Relevant data should be provided to MRT in a format that allows for easy input into the Road Maintenance System (RMS). Mapilllary (or any other application agreed with the Client) should be used to record images along the ROW.
33. Review the conformity of Contractor’s provision of bank guarantees in accordance with the requirements given in the works Contracts and ensuring that provided documents are in approved format and ensuring validity and confirming the enforceability of the securities;
34. Verify whether the bank guarantee for advance payment is in the form specified under the Contract, is in the amount and currencies stated in the Particular Conditions of the Contract and that the guarantee is valid until the entire advance payment is recovered from the Contractor's certificates;
35. Review and ensure the conformity of Contractor’s insurance policies in accordance with the requirements given in the civil works Contracts and tracking and ensure that the Contractor maintains the validity of the insurance policies throughout the effective period of the Contract;
36. Review compliance with the Contract documentation including the securing of all statutory clearances and permits as well as the handing over of the site;
37. Interpret the specific provisions of the Contract related to the Employer's obligation to give possession of the Site, and the Contractor's Program, assess the contractual consequences of any specific land acquisition issue and advise the MRT/PMO on the appropriate mitigation measures;
38. Issue a notice of the Commencement Date for the Works following due consultations with the MRT/PMO and supervise the commencement of works;
39. Prepare the Inception report of existing situation and plan of work for the Project (Works Contract).
40. **Detailed description of the Activities during the Supervision of the Construction Phase:** Activities will include, but not be limited to:
41. Approve the Contractor’s Representative;
42. Validate the receipt of all necessary insurance evidence, performance securities and warranties and other relevant contract documentation from the contractor(s).
43. Execute and deliver Commencement Notices in accordance with the terms of the respective contract(s).
44. Reviewing, approving and monitoring the Contractor’s detailed work schedule, such as works program, mobilization schedule, and other work programs such as the risk management strategy, E&S documentations, and regular progress reports throughout the project, notifying the Contractor and MRT/PMO, giving detailed reasons, if the schedule does not comply with the Contract, and ensuring that the Contractor complies at all times, with the approved schedule. In case of poor progress of the Works and falling behind the original or updated and approved work schedule and, if a postponement of the contractual Completion Date is foreseen, ensuring to take the necessary measures to increase the rate of the works and advising the MRT/PMO accordingly. Prepare action plans to remedy delays, as necessary. In case of postponement of the Completion Date, the Consultant shall report to the MRT/PMO on the consequences of such postponement, clarifying the determination of the causes and evaluation of the implications for the Contract.
45. Maintaining up-to-date records of all contractual administration, correspondence, measurements, payments, variations etc. All instructions to the Contractor shall be clearly documented and recorded by the Consultant.
46. For works for which the design is to be provided by the Client: The Consultant shall ensure the timely preparation and issue of all necessary construction design documents and drawings to the contractors, in accordance with the Project overall programme, and shall ensure that the respective works contractor(s) are not delayed due to the late provision by the Consultant of such construction design documents and drawings;
47. For works for which the design is to be provided by the Contractor: the Consultant shall review and approve the design documents, calculations, drawings, materials, method statements and temporary works proposals and other reports submitted by the Contractor and ensure compliance with the respective contract requirements, specifications, relevant standards and codes and good engineering practice (unless otherwise stated in the Employer's requirements, each review period shall not exceed 21 days, calculated from the date on which the Consultant receives a Contractor's Document or Contractor's notice).
48. Ensuring that the Contractor’s surveys, including topographical surveys, working drawings, as-built drawings and other measurements indicated in the civil works contracts comply with the requirements of the specifications.
49. Ensuring that the Conditions of Contract are strictly adhered and the Contractor and any subcontractors fulfill their contractual obligations.
50. Assist the parties in establishing a Dispute Avoidance/Adjudication Board (DAAB) provide all necessary information to DAAB members and attempt to facilitate an amicable settlement of the dispute between the Employer and the Contractor;
51. Checking and approving the Contractor’s laboratories to perform control tests of materials and of completed works, and ordering the removal of improper or substandard work according to the “Technical Regulations” in force in Mongolia and the inspection of materials and soil samples incorporated into the works (including verification tests of the Consultant’s Laboratory);
52. Inspecting the Contractor’s construction equipment, the safety of the works, property and personnel and the schedule of mitigation measures proposed to mitigate adverse environmental impacts. Notifying the Contractor to remedy any working methods, approaches and materials that fail to comply with the related Specifications.
53. Ensuring that all required approvals, construction permits, permits for digging and for closure of roads are obtained in time, before commencement of respective civil works.
54. Ensuring that all health and safety risks during construction and commissioning of the works are assessed in advance and health and safety risk mitigation measures and plans are introduced prior to commencing the respective activities, and implemented afterwards.
55. Based on the detailed design, identifying with the Contractor and public utility agencies, all services (i.e. electricity, telecommunications, water and irrigation) if any, within the right-of-way that are to be protected to avoid damage or to be relocated, as required by the works. Reviewing the owner-agencies’ reinstallation planning for water pipelines, irrigation network, telecommunications systems and electricity services and monitoring work progress to ensure continuous public supplies during the construction period and provide recommendations/proposals for the Client to enable the making of decisions on the issue.
56. Confirming the horizontal and vertical alignments for the roadways based on reviews of the Contract drawings and the topographic survey to be carried out by the Contractor.
57. Inspecting, monitoring and supervising the Contractors’ works and day-to-day operations in line with the approved Contract schedule and ensuring compliance of the quality of the Contractors’ works with the applicable technical specifications and design details of the Contract. Maintaining a day-to-day site diary by the supervision staff covering all Contractors’ activities relevant to the works, including OHS and E&S, and recording site conditions.
58. Reviewing and approval of the Quality Management System submitted by the Contractor and checking that implementation is in accordancew with the specifications; in particular, the Consultant shall verify that all laboratory tests described in terms of type and frequency are carried out by the Contractor's laboratory. The Consultant shall check the quality and quantity of such tests by conducting separate (independent) testing (legal tests) by means of the Consultant’s Laboratory to verify the Contractor's findings.
59. Reviewing, commenting upon, and accepting the Contractor’s Quality Assurance (QA) plans and procedures; assisting the Contractor with establishing on-site and laboratory-based quality control, testing, and reporting procedures for all construction, workmanship, and materials; supervising the Contractor in implementation of their approved quality assurance plans and ensuring the accomplishment of Quality Assurance (QA) shall be accomplished by;
60. Conducting assurance testing of split samples obtained by the Contractor at agreed quality control frequency;
61. Periodically observing sampling and testing procedures performed by the Contractor;
62. Monitoring required control charts exhibiting test results of control parameters; - Directing the Contractor to take additional samples at any time and location during production;
63. Testing verification samples taken independently of the Contractor's quality control samples at agreed quality control sample frequency;
64. Any combination of the above.
65. In all cases, the Consultant’s Quality Assurance and Verification testing shall be independent of the Contractor's tests. The QA program shall be conducted by a qualified key expert (s);
66. Notify the Client of any non-conformance, failure of tests or inspection and if such failure is anticipated to cause delay to any contract completion date or other material adverse consequence, advise on further tests required and arrange the respective contractor to carry out necessary rectification work.
67. Issue to the Contractor (at any time) instructions which may be necessary for the execution of the works and the remedying of any defects, all in accordance with the contract.
68. Preparing all reports in accordance with the format and content requirements, specified in Terms of Reference.
69. Prior to execution of works, approving the Contractor’s method statements and working drawings including occupational health and safety plans, traffic management and traffic control arrangements in accordance with national standards, proposed public and private haul and access routes, earthwork spoil disposal plans, together with the contractor’s arrangements for maintenance and reinstatement of the same, borrow locations, working areas, materials stockpile areas, materials preparation, and processing areas, etc.;
70. Prior to the commencement of construction, approving the Contractor’s Construction Health and Safety Plan, and during construction ensure that the contractor complies with the requirements of the plan;
71. Conduct Road Safety Audits (RSA) for each of the road projects;;Establishing procedures to verify the Contractor’s performance and report progress and any perceived problems on time, and provide recommendations to the Client; these include quality control reports, quantity survey records, requests for variations or change orders and for any Contractor’s claims and for invoices rendered.
72. Conducting weekly Site Meetings (technical matters) and monthly Site Meetings (progress matters) to be attended by representatives of the Client and the Contractor and preparing the minutes of such meetings and circulating them among the participants and thereafter including them in the monthly progress reports and attending and making presentations at progress coordination meetings and similar progress reviews to the Client. In Site Meetings, all potential delays and other problems shall be identified and corresponding actions discussed and agreed in order to assist the Contractor in avoiding or mitigating overall delay.
73. Responding to Contractor’s queries and requests for information diligently, and clarify any ambiguities detected in the contract Documents;
74. Evaluating any changes proposed (e.g. in terms of time, scope, methodology and cost) by the Contractor or the Client during the course of the Project. In the event of variations to the works being required (in case of emergency works, for example), review the necessary documents prepared by the Contractor, consult with the Contractor and submit to the Employer with recommendation for approval or rejection.
75. Making determinations on any claims submitted by the Client or the Contractor; analyzing the claims submitted by the Contractors and report upon whether the claims have been submitted in accordance with Dispute procedures. Further to the analysis, the Consultant shall advise the Client showing clearly the possible scenarios. The Consultant’s report to the Client shall be presented in a special report addressing specifically the claim submitted. The Consultant shall immediately report to the Client any event or dispute which requires the intervention of the Client and will assist in resolving any dispute.
76. Developing measurement and payment system, reviewing and certifying work volume and validate interim and final payments prepared by the Contractor. Measuring and keeping accurate records of permanent works executed by the Contractor (The works shall be measured on site by the supervisor in the presence of the Contractor). Arranging for timely submission of interim payment certificates and monitoring the release of payments.
77. Make recommendations to the Employer on the Contractor’s claims (in case of emergency works, for example), extension of time and other matters, based on the Contractor’s requests substantiated with detailed information.
78. Establishing a monitoring system for costs to date, and costs to completion, ensuring that the project financial management procedures are in place and that they are strictly followed, specifically relating to payments, financial accounting, any requests for time extensions, claims and Contractor’s invoices. Ensuring that the Client is at all times informed of all matters relating to payments, cash flow or any other impacts on financial provisions.
79. Reviewing the price adjustment data and coefficients included in the Contract and checking current index prices as submitted by the Contractor. Recommend to the Client for approval, any price adjustments found to be justified. In case the price adjustment indexes included in the civil works Contract(s) prove to be unreliable, or unavailable, develop an alternative solution and present it to the Client for approval.
80. Monitoring the implementation of community-targeted, public awareness raising campaigns on human trafficking and sexually transmitted diseases, as well as on road-user safety.
81. Monitoring the Contractor’s compliance with and performance of, required actions regarding HIV/AIDS, human trafficking and core labor standards in accordance with the Contract documents, such as awareness and education of laborers and workers. Ensuring that the Contractor does not recruit child labour in the execution of the civil works Contracts in accordance with the provisions of the Contract agreement.
82. Ensuring that the “as-built” drawings and O&M Manuals are prepared by the Contractors for all completed works as construction progresses. Review and approve those documents and correlate them with maintained records of all test data and results; certify them “as constructed” for each component of the works.
83. Review the contractor(s) testing and commissioning plans and procedures, and approve the methods for testing, pre-commissioning, and commissioning procedures and all necessary tests upon completion of the Works.
84. Prepare punch lists of any minor defects and outstanding works identified during the site inspections and documentation review and follow-up with the respective contractor(s) for correction of such defects and completion of the outstanding works.
85. Preparing and issuing Final Payment Certificates, Taking Over Certificates, and Performance Certificates, to the timing of, and as required by the Contract, and advising the Client on the release of all Contractor’s securities and retentions.
86. Preparing a completion report for the Contracts, including key lessons learned and recommendations for future projects, in a format and content as per the requirements of the MRT/PMO.
87. **Supervision during implementation period of OPBRC**: Following are responsibilities specific to the supervision of the OPBRC, during both construction and maintenance periods, in addition to other tasks outlined in this TOR:
88. The Contractor shall present for approval of the Consultant, within 14 days of receipt, a work plan for the design activities, with scheduled dates for each development stage of the detailed design. The below listed suitable stages are to be considered. The Consultant shall review the detailed design prepared by the Contractor, according to the work plan approved. At the suitable stages listed below, systematic reviews of the detailed design shall be performed in accordance with planned arrangements:
89. To assess the accomplishment of the final design work plan and its adequacy;
90. To evaluate the ability of the results of the design to meet the requirements;
91. To evaluate the capability of the existing resources as well as of the results gathered; and
92. To timely identify any problems and propose necessary actions.
93. Suitable stages:
94. Program for data gathering, taking into consideration existing data from Feasibility Study (FS) and Conceptual Design (CD)
95. Interpretation of the data gathered. Selection of design parameters
96. Incorporation of the design parameters into the design process
97. Design and analyses methods, including design calculations, geotechnical surveys and testing for road structure, bridges and major structures,
98. Adequacy of the designed solutions (e.g. geometric design; drainage; earthworks; pavement; road safety furniture; traffic signs and marking; bridges; environmental devices).
99. Participants in such reviews shall include representatives of functions concerned with the design and development stage(s) being reviewed. Records of the results of the reviews and any necessary actions shall be maintained.
100. The Consultant shall collect as necessary data, as mentioned in the earlier part of the TOR;
101. The Consultant shall review the Contractor’s Program of Works, including but not limited to:
102. Review the Program of Works submitted by the Contractor for the execution of the works to determine whether the methods, arrangements, order and timing of activities are realistic and coherent, in relation to the conditions pertaining to the site and contractual timelines;
103. Identify from the approved program the necessary information to be provided to the Contractor and ensure that it is made available in a timely manner, including information on climate change impact forecasting, vulnerable road sections etc.;
104. Ensure that the Program of Works includes: time for mobilization, field investigations and tests where needed; deadlines for rehabilitation per km, monthly activities, critical path activities, regulatory clearances and permissions; planning for maintenance works; quality control of works; allowance for adverse weather conditions; planned public, political or social events; a general description of the works method(s) the Contractor intends to adopt; and, the major stages in the execution of works;
105. Record and ensure that the Contractor is making available all documents in accordance with the contract;
106. Ensure that the Contractor conforms with contract requirements, standards, national and local requirements, and agreements with authorities and approvals regarding: choice of materials and resources; list of authorized sub-contractors; method logistics including earth moving related issues and materials; concrete pavement where so needed; adequate responsibilities of foremen and key staff responsible for the works; environmental effects; health and safety issues including the fight against HIV Aids and contribution to the fight against gender-based violence (GBV), sexual harassment and child abuse; and proper management of hazardous materials such as explosives.
107. The Consultant shall oversee and monitor the implementation and operation of the contractors Self control unit (SCU) including:
108. The provision of laboratory and other equipment to carry out its duties
109. The staffing of SCU with qualified persona under supervision of the head of the SCU
110. Implementation and use of correct QA procures, guaranteeing that works are only accepted at required standard
111. The Consultant shall review the Quality Assurance Plan of the Contractor, including but not limited to:
112. Organization of the quality assurance tasks, the responsibility and authority for the management, who can sign letters and claims with responsibilities for quality assurance between the SCU and the contractors’ teams;
113. Attendance in meetings with the Consultants and/or the Employer;
114. Records and reporting;
115. Improvement of road conditions with measurements;
116. Contract administration documents, archiving and as-built drawings;
117. Management of suppliers and sub-contractors;
118. Inspection and testing of the works to ensure compliance with quality requirements, control method, extent of method, acceptance criteria; procedures to rectify any case of non-compliance;
119. Control of the quality and quantity of materials and timely delivery;
120. Non-conformance reports and proposed remedies;
121. Internal audit with remedies in case corrective actions are proposed by auditors.
122. The Consultant shall review and analyze claims for Time Extension and Payment for Emergency Works, including but not limited to:
123. Advise and assist the Employer on issues relating to changes to the Contract, including but not limited to any addition, extension and litigation/arbitration and assist on resulting consequences;
124. Review, investigate and prepare report on claims submitted by the Contractors within 21 days of the submission, establish admissibility to determine legitimate and justified costs and recommend, where appropriate, settlements;
125. Advise the Employer on the claims with proposed solutions.
126. The Consultant shall verify and make recommendations on the work progress during the Construction Phase. In case of Emergency works, the Consultants shall verify that work orders are delivered as per the expectations of the Employer and in full conformation with the Project requirements and provide recommendations as appropriate. Monthly progress reports should include an analysis of the improvement of roughness and deflection of the road pavement with clear indication of interventions made during the reporting period. Such reports should comment on pattern of traffic, road alignment, prevention of accidents and include proposals to improve traffic safety.
127. Review the Contractor’s Milestone and Substantial Completion Report: The Consultants shall review the reports on completed milestone prepared by the Contractor and advise DOR, as appropriate, to make the related payment. At time of review, the Consultants shall ensure completeness of the reports submitted by the Contractor to include an overall description of the implementation, major delivery events, and achievements.
128. Review health and safety issues with the Contractor: The Consultants shall, when reviewing the Contractor documents and report and at the time of site visits, ensure that none of the safety regulations have been violated or otherwise ensure that appropriate measures are applied to prevent safety and security breaches resulting in accidents (including to members of the public).
129. The Consultant shall review the Health and Safety Management Plans proposed by the Contractor.
130. The Consultant shall review the Emergency Procedures and Contingency Plan to be submitted by the Contractor;
131. The Consultant shall supervise variations:
132. Consider and evaluate the Contractor’s proposals for any modifications of drawings or specifications and report them to the Employer with recommendations, considering that any variation approved will be remunerated within the limits of the Milestone lump sum payments (Emergency works, if any, would be paid based on unit costs provided in the Contractor’s bid, and would not impact the Milestone payment);
133. Inform the Employer of intended variations including effects on time schedule, quality, durability and function including on design features specifically for climate change impacts, and get Employer approval for the intended variation;
134. Examine the Contractor’s proposals for changes and provide recommendations to the Employer for approval, in case of substantial changes (because of the nature of the OPBRC, there would be no changes to the Milestone payments);
135. Under exceptional conditions, such as emergency works, issue variations by instructions to the Contractor including, but not limited to, time schedule, payment terms, and any technical deviations and quality requirements;
136. Supervise any works carried out with respect to a variation and maintain detailed records of any such works;
137. Ensure that all relevant project documentation, including site drawings, is updated to reflect the variation and given to Contractors and the Employer;
138. Be responsible to follow up on all works under a variation and final acceptance at completion;
139. At completion of a variation, ensure that the payments to the Contractor are in line with the variation and in line with the rates and prices set out in the original contract;
140. In the event of disagreements on rates and prices between the Employer and the Contractor, the Consultant shall recommend rates and prices to be approved by the Employer and confirmed by an Amendment to the original contract; reasonable adjustments should consider the actual costs with evidence included.
141. Verification of Materials Quality, and QA of materials and workmanship: While under OPBRC the performance responsibility is with the Contractor, the Consultants shall verify (on a sampling basis) that the Contractor is:
142. Performing laboratory and/or field tests on the quality of the materials or have obtained from its suppliers, satisfactory materials specifications and quality assurance, testing and warranties;
143. Using materials of satisfactory technical characteristics, quality and quantity and that the extraction is in conformance with the legislation and, as required, has obtained extraction authorization;
144. The Consultants shall monitor the Contractor’s testing of the quality of the materials and works to verify compliance with all specified requirements.
145. Compliance with Construction Standards and Levels of Service for the Works: The Consultant understands that there be will compliance requirements during the Construction Phase, including for any Emergency Works ordered by the Employer. The Contractor is responsible for compliance with the construction standards and service level. The Consultant shall review, comment and make recommendations on the adherence to construction standards and service levels by the Contractor. Subject to contract provisions for the Contractor, non-compliance with construction standards and/or service levels would result in delay of Milestone payments to the Contractor or, in case of major and/or consequential and/or repetitive lack of performance and compliance, to contract termination. The Consultant shall determine the level of compliance with the contracted service levels at all times during the Consultancy.
146. Monitor and control costs: The Consultant shall monitor and control quantities/costs for the contract, noting that the primary payment mechanism under the OPBRC is for completion of milestones during the Construction Phase, and for meeting of performance standards during the maintenance period (i.e. the Contractor is not directly paid for the quantity of inputs, apart from Emergency works or potential variations). The Consultant shall make accounts of current quantities executed and related cost estimate for the works executed, including for issuing Interim, Final and Maintenance Payment Certificates, work orders and other invoices. In case of variation orders, accounts shall provide a summary of the agreed scope of the works that may be issued by the Employer. The Consultant shall:
147. Agree with the Contractor on drafts for the payment certificates and make recommendations to the Employer on payments;
148. Receive and record evidence of payments. The Interim Construction Payments (for milestones) shall be numbered consecutively, following completion of 1/10, 2/10, etc. and full completion of the works during the Construction Phase.
149. The Consultant shall make a thorough check of the payment certificates and their enclosures and attachments including checks on quantities and amounts. Any review of payment claims for the Contractor shall be in accordance with the OPBRC legal and technical conditions. Upon review and within a maximum of 14 days of receipt of claims, the Engineer shall forward the applications to the Employer with recommendations for payment. With respect to Emergency Works as well as any possible additional works improvement approved, the Consultants shall ensure that all applications detail the actual quantities and value of works completed to date compared with the Work Order and unit rate for each item and in accordance with the Contract. The Engineer shall also ensure that applications account for payment due to the Contractor including payment reduction, discounts if any, and retention for:
150. Emergency Works; and
151. Other payments to which the Contractor is entitled.
152. Payment Performance Regime: Liquidated Damages are applied in the case of non-compliant delays or quality requirements concerning implementation of works including, but not limited to, the Service Level Requirements under the OPBRC. The Consultants shall evaluate and determine the liquidated damages in accordance with the Conditions of Contract and shall recommend to the Employer the procedures to be followed. In addition, as needed, the Consultant shall prepare Defects Correction Certificates.
153. Compliance with Specified Levels of Service for the O&M Period: The Consultant will monitor the Contractor’s compliance with the levels of service specified in the OPBRC during the 6 first month of the O&M period, after developing and putting in place all required procedures. The Consultant will also supervise any Emergency Works, as ordered by the Employer. The responsibility for compliance with the service levels will be on the Contractor. Therefore, the Consultants shall review, comment and make recommendations on the adherence to service levels by the Contractor. Subject to contract provisions with the Contractor, the remedy for Non-compliance with service levels may result in reductions (through penalties) of the quarterly availability payments to the Contractor. In case of major and/or consequential and/or repetitive lack of performance and compliance, the Employer may terminate the OPBRC subject to contract provisions. The Consultants shall inform the Employer on any significant lack of levels of service and propose remedies. The Consultant shall issue notification and follow up on remedies approved by the Employer and report on these, with evidence given whether the Contractor reacted fully to such notification. For determination of service level compliance, the Consultants shall:
154. Check the compliance with the performance indicators specified in the OPBRC. These indicators are expected to cover routine maintenance (potholes, vegetation, drainage, snow, icing etc.), durability (roughness, strength, etc.) and management (reporting, data supply etc.);
155. Make recommendations on the magnitude of any penalty deductions based on the assessed performance;
156. Work with the Contractor to identify ways to address any ongoing non-compliance issues.
157. **Detailed description of Defect Notification Period activities:** The activities of the Consultant during the Defect Notification Period (DNP) include but are not restricted to the main points listed below:
     1. Notify the Client of any defects in the Project works that may appear during the defect liability period(s) and issue necessary instructions to the respective contractor and supervise any remedial works as requested.
     2. Inspect and approve Contractor's remedy of defects.
     3. Monitor the contractor(s) in performing their obligations and providing the necessary support for any issues arising during the defect liability period(s).
     4. Facilitate Project close-out, and ensure that all the close-out activities, including the coordination with the contractor(s), and ensure that such close-out activities are carried out in a proper and timely manner.
     5. Verify final measurement and prepare and issue the Final Payment Certificate.
     6. Prepare and issue the Performance Certificate and related documents.
     7. Verify the draft final statement of account submitted by the Contractor.
     8. Submit the final statement of account.
     9. Support and assist the Employer in any claim or dispute.
     10. Submit the final implementation report consistency with Table 6.
     11. Arrange, in conjunction with the Client, for the return of any outstanding bank guarantees provided by the works contractor(s), including performance securities.
     12. Recommendations with regard to the Employer’s operation and maintenance practices.
158. **Environmental and Social Risk Management Support and Monitoring of the Works:** The Consultant ensures the implementation of the Project’s Environmental and Social Management Plan (ESMP), which is part of the Project’s Environment and Social Impact Assessment (ESIA), and also part of the Contract documentation. The specific tasks will include the following:
159. Prior to implementation of the Works:
160. Organizing a training program for the Client on how the environmental and social aspects of the project will be monitored, giving emphasis on Site Specific Environmental and Social Management Plan (SS-ESMP) evaluation; compliance monitoring of construction activities and preparation of corresponding reports; supervision responsibilities and interaction with the Contractor; and documentation, resolution and reporting of non-compliance issues and complaints.
161. Review and approve the Contractors' SS-ESMPs in order to be compliant with the (a) environmental and social requirements of the construction contracts as reflected in the project ESMP, (b) environmental and other related laws of Mongolia, and (c) relevant World Bank Safeguard Policy Statement.
162. Designing and implementing an ambient environmental and social monitoring program for air quality, water quality, and noise, and ensure that the pre-construction baseline monitoring program has been implemented and the report is finalized prior to commencement of construction.
163. Providing guidance to the Client’s environment and social specialists on the environmental and social aspects of the project with emphasis on compliance monitoring and reporting.
164. Assisting the Client with establishing and operating the grievance redress mechanism, including creating a grievance chart (format to be agreed with the Client) which is to be updated on a monthly basis.
165. Evaluating and approve Environmental, Social, Health and Safety (ESHS) requirements and provisions Contractor’s method statements and working drawings and recommend corrective actions needed, if any, to ensure compliance with the Project’s environmental requirements.
166. Reviewing the Contractor’s SSESMPs and all topic specific (such as tunnel spoil and other waste) and site (such as construction camp) specific ESMPs; recommending modifications to these documents to be compliant with: (a) the environmental requirements of the construction contracts as reflected in the ESMPs, (b) the conditions of environmental approvals of the Government, if required, and (c) social risk management requirements, including labor procedures (such as written contracts, code of conducts to be signed, workers grievance logs), workers occupational health and safety.
167. Developing the compliance monitoring system to be used during the construction period for monitoring the Contractor’s performance relative to the implementation of the Environmental and Social Management Plan (ESMP) and environmental and social risk management requirements, including the preparation of: (a) monitoring and corrective action forms and checklists, including key performance indicators to measure the compliance of the Contractor and efficiency of all mitigation and management measures (b) inspection procedures, and (c) documentation procedures.
168. Conduct orientation sessions with the contractor on the compliance monitoring system to be used, notification of non-compliance, and the process of requiring the contractor to implement corrective measures when necessary.
169. Providing guidance to the Contractor on how the SS-ESMPs will be implemented including the: (a) requirements for each mitigation measure, and (b) implementation schedule of each mitigation measure taking into consideration the general requirement that no specific construction activity will be approved to be commenced if the associated mitigation measures for such activity are not ready before work commences.
170. During implementation of the Works:
171. Supervising the implementation of the SS-ESMP, the Project ESMP, Land Management Plan (LMP), Traffic Management Plan (TMP), and other relevant topic and site specific ESMPs.
172. Undertaking all ambient environmental monitoring (water quality, air quality, and noise levels), by independent third-party environmental monitoring contractors as appropriate.
173. Evaluating the Contractor's submitted works activities and schedules relative to the requirements of the approved SS-ESMPs. Review the detailed design and work plan to be prepared by the Contractor to ensure that all operation areas, activities and material are generally considered in the Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) and make recommendation for additional studies if required.
174. Undertaking monthly inspections, monitoring and reporting of construction sites and all construction-related facilities (workers' camps, asphalt batching plants, concrete batching plants, borrow pits, disposal sites for tunnel and other spoil and unsuitable materials, equipment maintenance areas, fuel and materials storage sites, project-specific quarries and crushers, etc.) to assess the Contractor’s compliance with the SSESMPs, the Project’s ESMP and (LMP).
175. Require the Contractor to update its SS-ESMP when necessary.
176. Monitoring the Contractor's compliance with health and safety requirements of the project as stipulated in the contract documents and their approved health and safety plans and require the contractor to provide an updated plan when necessary.
177. Recording non-conformance cases, inform the contractor of improvements needed, respond to contractor’s proposals, prepare corrective action plans for the contractor, and monitor their implementation.
178. Monitoring and implementing the road safety measures in a timely and systematic manner including the supervision of proper implementation of the Traffic Management Plans. Ensure that any incidents/ accidents in worksites or road corridors of the project area reported promptly to the PMO and the Bank; Monitoring of contractor level grievance system and ensure all the complaints/grievances are properly addressed and resolved at contractor level and report grievances that need client attention.
179. Assessing and approving use of temporary construction areas identified during construction such as camps, laydown areas, access roads, etc.
180. Including environmental and social monitoring in monthly monitoring reports for submission to the Client.
181. Preparing draft semi-annual environmental and social risk management monitoring reports, as required.
182. **Emergency Works**: Mongolia is prone to floods and other natural disasters. Emergency works, either recommended by the Consultants, the Contractor, or by the Employer, shall be dealt with urgently. In such cases, emergency designs and cost estimates based on the contracted rates for emergency works shall be submitted to the Employer for timely approval and issuance of work orders.
183. **Road Safety Supervision:** Conduct Road Safety Audits (RSA) for each of the road projects at the following stages: (i) design stage; (ii) construction stage; (iii) post construction; The Consultant shall ensure that all gaps identified and recommendations are duly addressed by the contractor(s) and ensure that road safety design measures are implemented in full accordance with the Contract drawings, specifications and international good practice;
184. The Consultant shall verify if the Contractor took into consideration and implemented agreed road safety measures. The Consultant will ensure that road safety measures including road safety audits are implemented by the contractor during and after project implementation and related information is shared to stakeholders in accordance with Project Communications Plan.
185. **Project Communications Plan:** The Consultant shall develop and implement a Project Communications Plan. The plan will include:
186. Public Relations: The Consultant will disseminate the project presentation leaflets prepared by the Client, record positive and negative local media coverage about the project, and draft press releases and briefers on project progress.
187. Stakeholder Relations and Grievance Redress Mechanism: The Consultant will support the Client to consult with the communities and stakeholders in accordance with the Project’s Stakeholder Engagement Plan. It will assist the Client with holding stakeholder outreach meetings in the project area to update local communities with project progress. Specific communications materials will be provided to community members describing the project, relevant governing Bank Environmental and Social Standards, technical notes and procedures, benefit entitlements (for affected people), grievance redress mechanism, HIV/AIDs, safe working conditions, etc. A basic tracking system will be maintained to record consultation activities and grievances, the provision of project information, to register concerns and/or complaints received, and to track follow-up action.
188. Road user information: The Consultant shall support the Client to ensure that clear and updated information is provided to road users about current and future disruptions caused by the works.
189. HIV/AIDS, SEA/SH and Human Trafficking Awareness Program: The civil works Contractor will be required to design a gender-sensitive HIV/AIDS, Sexual Exploitation and Abuse/Sexual Humiliation and Human Trafficking Awareness program, for the Consultant’s review and approval. The Contractor will subcontract the implementation of the campaigns to a local consultant or non-governmental organization. The Consultant will facilitate and monitor implementation of the programs.
190. Gender and Equal Opportunity: For the Project, the Consultant will design, manage and monitor activities related to strengthening/ safeguarding equality of opportunity, and ensure that these are implemented and monitored using appropriate resources and indicators, including but not limited to the following:
191. Designate specific persons to monitor gender in project implementation.
192. Set time frames for gender reporting and comprehensive formats in which the reports should be done.
193. Have both qualitative and quantitative indicators for assessing change and effectiveness of gender integration into project performance.
194. Involve all key stakeholders in improvement planning and evaluation processes, particularly women.
195. Involve external partners in gender in improvement planning and evaluations processes and ensure that they understand the policies and the outcomes sought.

# **IMPLEMENTATION ARRANGEMENTS**

1. The Consultancy Contract is “Time -Based” contract. The total duration of the contract will be 60 months. It may be extended depending on actual progress of contract works, project needs and availability of financing. The Time-Based contract payment should connect with actual input of the Consultant’s staff and Key Experts.
2. **Consultant’s staff:** The Consultant shall establish a team for the project's full duration, ensuring permanent presence at the works sites (as required). The Consultant shall liaise with the MRT Project Management Office (PMO). To fulfill this requirement the Consultant committed to establishing the Main (Central) Office in Ulaanbaatar for the whole duration of the project and several Site Offices for the duration of the construction period. Planned locations of Field Offices are shown in the scheme provided in Annex 1.
3. It should be noted that all civil works is definitely to be halted during winter. Therefore, site supervision staff of the Consultant will be fielded up to 9 months per year. However, implementation of TMP and other relevant instruments under the ESMP shall be in effect throughout the construction period, irrespective of the weather-induced halts. It is the responsibility of the Consultant to ensure that C-ESMP is adhered to. Some key staff such as deputy team leader, resident engineers, and office-based staff shall be fielded for continuous input.
4. The Consultant shall consider the prospective peaks of the construction activities and ensure the adequacy of staff levels during each period.
5. The Consultant shall employ a satisfactory number of key and non-key experts, suitably qualified engineers and other professionals who shall be competent to carry out all of the duties in accordance with the scope of works that are specified in these Terms of Reference.
6. The Consultant shall retain personnel with the following minimum qualifications for particular task in order to successfully implement the assignment.

# **Team Composition, Estimated Inputs, and Qualification Requirements for Key Experts**

1. The Consultant will have extensive experience in each part of the services and will nominate personnel with appropriate in-depth skills and expertise. It is anticipated that the Consultant’s team will be essentially as set out in this TOR, although, in preparing their proposal the consultant may propose alternative arrangements which, in their opinion, will provide services of an equivalent quality. The final staffing will be adjusted to suit the overall project program, the methods adopted by the Contractors and the actual procurement and implementation schedules.
2. It is estimated that about **54** person-months of international consultants’ services and about **461** person-months of national consultants’ services, together with about **272** person-months of technical and administrativesupport will be required.
3. The anticipated team composition and estimated person month inputs of key experts is shown in Table 2. Detailed Planned Team Composition and Personal Inputs for Key Experts shown in Annex 2.

Table 2: Team Composition and Personal Inputs for Key Experts

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Position | | | Total time-Input /Person-months/ |
| **1. International Key Experts** | | | | |
| IK1 | Team Leader/Engineer | | | 24 |
| IK2 | Road Maintenance Engineer | | | 16 |
| IK3 | Contract Management Specialist | | | 12 |
| IK4 | Road Safety Specialist | | | 2 |
| ***Total International Key Experts Person-months*** | | | | ***54*** |
| **2. National Key Experts** | | | | |
| NK1 | Deputy team leader/Engineer's Representative | | | 32 |
| NK2 | Road Design Engineer | | | 4 |
| NK3 | Bridge Design Engineer | | | 4 |
| NK4 | Road Safety Specialist | | | 17 |
| NK5 | Environmental Safeguard and Impact Assessment Specialist | | | 17 |
| NK6 | Social Development, Gender and Resettlement Specialist | | | 17 |
| **2.1. Eastern team** | | | | |
| NK7 | Eastern Team/Senior Resident Engineer | | | 24 |
| NK8 | Package 1:  Lot 1-1 | A0501 Ulaanbaatar-Undurkhaan 68 km road (design & build, rehabilitation works) | Resident Engineer | 16 |
| NK9 | Material Engineer | 16 |
| NK10 | Survey Engineer | 16 |
| NK11 | Package 3 | A0502 Undurkhaan - Choibalsan 50 km road rehabilitation work (Designed by Employer) | Resident Engineer | 16 |
| NK12 | Material Engineer | 16 |
| NK13 | Quantity Surveyor | 16 |
| NK14 | Survey Engineer | 16 |
| **2.2. Western-South Team** | | | | |
| NK15 | Package 1:  Lot 1-2  Package 2:  Lot 2-1     Package 5 | A0302 Arvaikheer - Bayankhongor 35 km road (design and rehabilitation works)  A0301 Ulaanbaatar-Arvaikheer 105 km road  (design and rehabilitation works)  Last mile connectivity 16 km new road construction of Yosonzuil soum, Uvurkhangai province | Western-South Team/Senior Resident Engineer | 24 |
| NK16 | Quantity Surveyor | 16 |
| NK17 | Resident Engineer | 16 |
| NK18 | Material Engineer | 16 |
| NK19 | Survey Engineer | 16 |
| **2.3. Western-North Team** | | | | |
| NK20 | Western-North Team/Senior Resident Engineer | | | 30 |
| NK21 | Package 2:  Lot 2-2  Package 2:  Lot 2-3  Package 6 | A0602 Karkhorin-Tsetserleg 40 km road (design and rehabilitation works)  A0603 Tsetserleg-Tosontsengel 50 km road with Gichgen, Belkhi, and Khanui river bridges rehabilitation and maintenance (design and rehabilitation works) Last mile connectivity 35 km new road construction of Bulgan soum, Arkhangai Province | Quantity Surveyor | 16 |
| NK22 | Resident Engineer | 16 |
| NK23 | Bridge Engineer | 16 |
| NK24 | Material Engineer | 16 |
| NK25 | Survey Engineer | 16 |
| NK26 | Package 4 | A0902 Bulgan - Murun 13km road rehabilitation (OPBRC) | Resident Engineer | 12 |
| NK27 | Material Engineer | 12 |
| NK28 | Survey Engineer | 12 |
| ***Total National Key Experts Person-months*** | | | | ***461*** |
| **TOTAL PERSON MONTHS** | | | | **515** |

1. **Technical and administrative** support staff costs needed to maintain the Consultant’s Site offices as indicated in Table 3, should be included in the remuneration rates for the key and non-key experts, except for the following Administrative Staff explicitly listed in the Contract:

Table 3: Technical and administrative support staff /non key/

|  |  |  |
| --- | --- | --- |
| No. | Position | Total time-Input /Person-months/ |
| 1 | Office Engineer/CAD operator (2 persons x 16 months) | 32 |
| 2 | Office Manager (1 person x 24 months) | 24 |
| 3 | Interpreter/Translator (4 persons x 24 months) | 24 |
| 4 | Secretary/Computer operator (4 persons x 24 months) | 96 |
| 5 | Office assistant (4 persons x 24 months) | 96 |
| **Total Technical and administrative support staff Person-months** | | **272** |

1. **Experts’ Minimum Qualification Requirements:** The team members’ minimum credentials are presented in Annex 3.
2. The Team Leader must ensure that the project team will achieve all the procedural and contractual obligations of the contract. He/she shall be responsible for establishing the internal management procedures required, particularly in terms of reporting. He/she shall be responsible to coordinate, supervise, manage, monitor and appraise all aspects of the project’s implementation. He/she shall be responsible for informing the Employer when submitting suitable non-key experts’ CVs. The Team Leader shall have the overall responsibility for the project, including primary contact with MRT/PMO and stakeholders and shall be responsible for ensuring that all stakeholders are informed about the activities, progress and project evaluation.
3. The Consultant must select and hire non-key experts as required according to the profiles identified in the Organization & Methodology and/or these Terms of Reference. It must clearly indicate their expert's profile so that the applicable daily fee rate in the budget breakdown is clear. All experts must be independent and free from conflicts of interest in the responsibilities they take on.
4. The selection procedures used by the Consultant to select these other experts (unless already identified in the Contract) must be transparent, and must be based on pre-defined criteria, including professional qualifications, language skills and work experience. The findings of the selection panel must be recorded. The selected experts must be subject to approval by the Employer before the start of their implementation of tasks.

# **Client’s Input and Counterpart Personnel**

1. The PMO under MRT will serve as the liaison between MRT, consultants and contractors, and shall be responsible for the overall project management.

The following facilities for the Consultant will be provided by the Contractors:

1. Site offices, including buildings, maintenance and insurance, utilities, furniture and air-conditioning, computers, printers, scanners, photocopiers, office stationery and consumables including printing consumables;
2. Support staff including cleaners, survey assistants and labor;
3. Communications including hardware, installation and usage cost of telephones (landline or mobile) and internet access;
4. Vehicles, including site vehicles appropriate to the number of supervision staff, drivers, fuel, maintenance, taxes and insurance;
5. Equipment including topographic survey and inspection equipment and personal protective equipment (PPE);
6. Applicable Codes and Standards
7. Accommodation local to the Site appropriate to the number of supervision staff including maintenance, insurance and utilities;
8. The MRT/PMO shall provide all relevant project reports, documents, etc. relating to the project and Contractual documents of the Civil Work contracts.
9. No other facilities, equipment, logistical support, or other things will be provided during the services except Laboratory and Testing equipment provided by civil work Contractors. The consultant shall therefore be responsible for all costs associated with accommodation away from the Site locality and any other costs necessary for the performance of the services.

# **COMMENCEMENT DATE & PERIOD OF IMPLEMENTATION**

1. The tentative start of this assignment will be Q1/2025. However, the official commencement of the assignment will be defined with an administrative order issued by the Employer.
2. The period of the services will be aligned with the period of execution of the Work Contract. The initial duration of assignment will be **60 months** from the commencement date, comprising:

* 3 months for Inception Phase (including design review for civil work contracts of the Package 1, Package 2 and Package 4);
* Implementation period of each civil work contracts;
* Defects Notification Period for all work contracts;
* 36 months of the periodic maintenance for OPBRC (Package 4)
* 1 month for Final Report after completion of assignment.

1. Subject to Employer’s needs and availability of funds the assignment may be extended for another 24 months covering the second and third years of the Defects Notification Period.

# **REPORTING REQUIREMENTS**

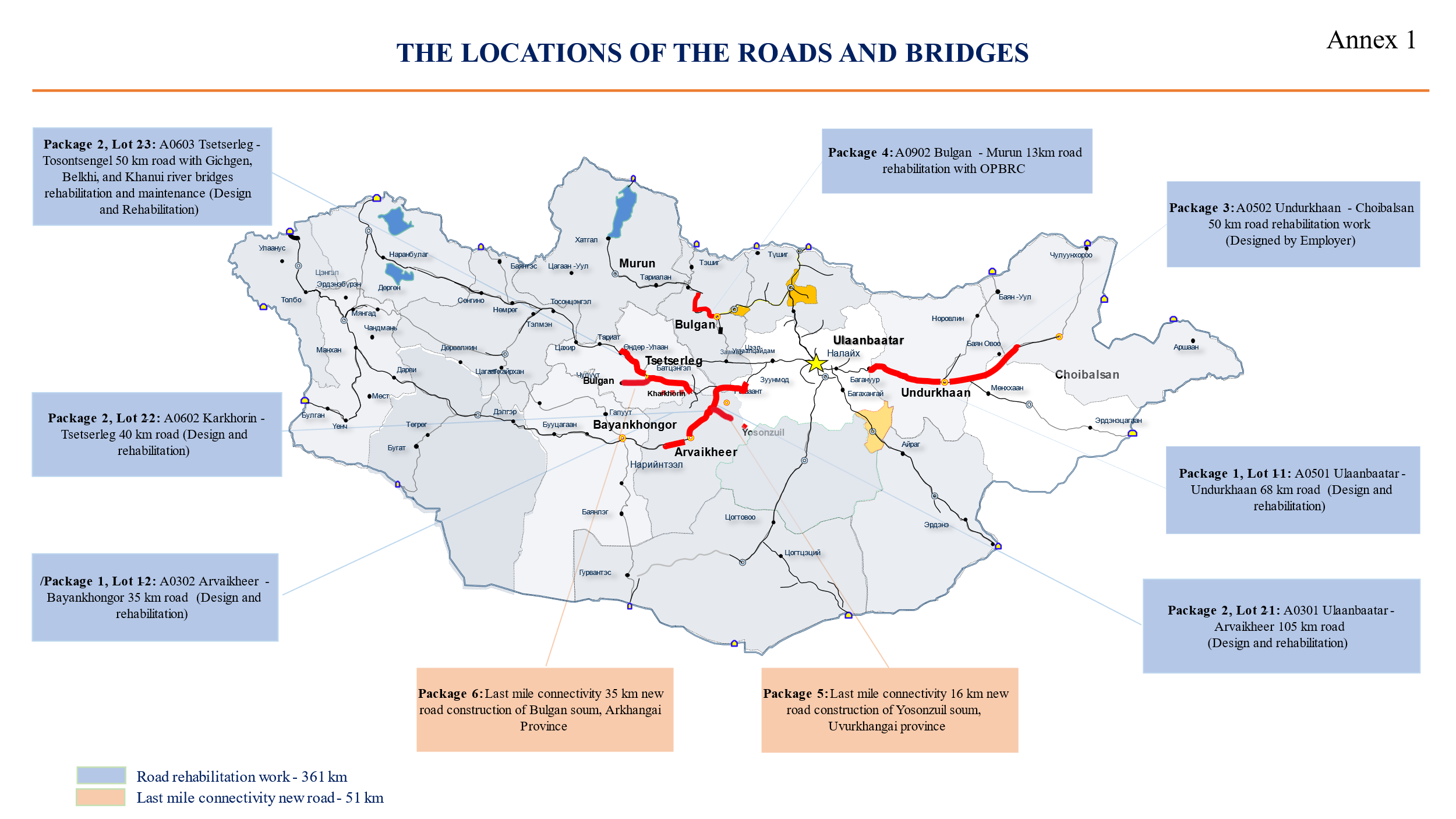
1. The Consultant will prepare and submit to PMO three copies including electronic version of each of the listed reports in Table 3 together with copy in English and Mongolian Language. The format of these reports shall be mutually agreed upon with the PMO.

Table 3: Reporting and Document Submission Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Reports | Contents | | Due Date |
| **Monitoring and Progress Report** | | | |
| Inception report | Analysis of existing situation and plan of work for the Project (Works Contract). This report, among others shall consist of:   * The work plan and the overall approach, methodology vis-à-vis the assignment; * Implementation program and timetable of the works; * Agreement on the detailed content of the progress reports. * Baseline data as required for the design and monitoring framework; * Identification of major likely issues and problems, and proposition of recommendations. | | No later than 2 months after the Commencement Date |
| Monthly Progress Reports | These reports, among others shall consist of:   * Executive Summary * Construction progress during the month and cumulative to date drawing specific attention to any major causes of delay (administrative, technical, or financial) with details of remedial action taken or recommended to the Employer. * A comparison of actual and forecast expenditure both during the month and cumulative to date, and a record of the status of Contractor's Statements and payment of IPCs, of all claims for cost or time extensions, and of actions required of PIU to permit unconstrained works implementation. The Consultant will also advise on the final estimated cost of the contract and draw attention to any major changes including details of remedial action taken or recommended to the Employer. * Brief on all correspondence exchanged with the Contractor particularly relating to contractual clauses, with financial and time implications. * Technical appreciation of any design or quality control problems for each individual contract including details of remedial action taken or recommended to the Employer. * Summary of compliance covering environmental and social safeguards and any proposed corrective actions, together with information on traffic safety education and information activities and incidents | | No later than 7 working days after the end of each month. |
| Quarterly reports | * Drafting of sections of PMO’s quarterly report to Bank. | | Within 14 days after the end of each quarter |
| Mid-Term review Report | * comprehensive review of project progress, achievements and problems at mid-term review stage; * description of any revisions made or estimated to be made to the project design. | | At least 21 days prior to the WB mid-term review mission |
| Road O&M Performance | * The Consultants shall prepare monthly concise O&M reports and quarterly comprehensive reports on project monitoring and the condition of the project road in relation to O&M requirements for all sections of the road that have had milestone payments for the improvement works approved. During the Construction Phase, the Executive Summary of the standalone O&M report is to be incorporated into the Monthly Progress Reports and Quarterly Reports for the project. | | Monthly |
| Environmental and Social Monitoring Reports | * The Consultants shall prepare and submit to the World Bank (within 14 days after the end period or as agreed with the World Bank) a consolidated semi-annual and annual monitoring report summarizing all environmental and social safeguard activities (ESMP, TMPs, etc.) including progress and records on GRM and other aspects related to road safety, workers OHS, employment, community health and safety, etc. The report shall also summarize the performance of the Consultant’s staff in implementing their supervision responsibilities. | | Semi-annual and annual |
| Draft Final Contract Implementation Report | Short description of achievements including problems encountered and recommendations. | | No later than 1 month before the end of the construction period. |
| Project Completion Report | On completion of the Works (that is, upon the issue of the Taking-over Certificate), the Engineer shall prepare a Final Report which shall contain at least:   * Short description of achievements including problems encountered and recommendations; * a final invoice for implementation of works period and the financial report accompanied by the expenditure verification report; * copies of the Taking-over Certificate(s); * verified “as-built drawings”, prepared by the Contractors, showing all revisions to the design of the Works, * a complete analysis of the cost of the completed Works; * an overview of the actual progress of the Works, including details of reasons for delays and/or extensions of time; * commissioning reports for the various mechanical and electrical components of the Works; * details of all permits required for the construction of the Works; * an overview of site safety procedures, any problems in this respect and recommendations for improvements; * an overview of the Contractors’ working practices and resources; * an assessment of the quality of materials and workmanship, any problems in this regard and recommendations for improvement; * details of technical difficulties encountered and how these were resolved; * details of administrative difficulties encountered and how these were overcome, and * an appraisal of the strengths and weaknesses of the design of the Works and the Contract Documents, including the Design Report and Drawings, Bills of Quantities, Specifications, and the Particular Conditions of Contract and Appendix to Tender, with recommendations on how improvements can be made for future contracts. * format is to be agreed with WB and the PMO. | | Within 90 days after physical completion of the project |
| **Special Reports** | | | |
| Consultant’s Quality Assurance Manual | | 90 days after commencement of Services | |
| Invoice Certification | | After monthly Contractors’ Invoice | |
| Final invoice certification | | After Final Contractors’ Invoice | |
| As-Built Drawings report | | At the end of Construction period | |
| Annual Report on Environmental, Resettlement, Social and Health matters | | At the end of the reporting period, to be submitted to the Bank | |
| Claims Reports | | Within 7 days claim has been notified by the Contractors | |
| Minutes of site meetings | | Within 1 day after the meeting | |
| Minutes of monthly meetings | | Within 2 days after the meeting | |
| Weekly Report (Site diary-daily report sheet) | | One per week | |
| Weekly Report - Contractors’ labour and plant returns | | One per week | |
| Accidents Reports | | As required, if any significant accident occurs on the Site | |
| Test certificates | | On monthly base | |
| Engineer’s Instructions | | When an instruction is issued | |
| Quality Assurance Memoranda | | As necessary | |
| Maintenance Report | | At the end of DNP | |

1. All reports must be clear and concise, thus enabling the executive bodies concerned to take an informed decision on this basis. All reports prepared in electronic version should be submitted in .doc and pdf. Format. In cases of disputes and misunderstandings, English language prevails.
2. The Consultant will be responsible for the timely presentation of the reports and deliverables of the assignment.

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Annex 2

Annex 3

**The team members’ minimum credentials**

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| **1. International Key Experts** | |
| **Position:** | **IK-1 Team Leader Engineer’s Representative** |
| Qualifications: | * Degree in civil engineering preferably with post graduate qualification in highway engineering. * Excellent knowledge of English language |
| Experience: | * Fifteen (15) years’ experience in construction supervision of road projects, including projects under FIDIC Conditions of Contract. * The candidate should have a proven record of managerial capability through the directing/managing of major international civil engineering works, including projects of a similar magnitude financed by a major multilateral international lending agency. * To include ten (10) years’ international experience. |
| Tasks: | * The Team Leader must ensure that the project team will achieve all the procedural and contractual obligations of the contract. He/she shall be responsible for establishing the internal management procedures required, particularly in terms of reporting. He/she shall be responsible to coordinate, supervise, manage, monitor and appraise all aspects of the project’s implementation. * The Team Leader shall have the overall responsibility for the project, including primary contact with MRTD and stakeholders and shall be responsible for ensuring that all stakeholders are informed about the activities, progress and project evaluation. |
| **Position:** | **IK2 - Road Maintenance Engineer** |
| Qualifications: | * Degree in Civil Engineering preferably with a post-graduate qualification in highway engineering. * Fluent in English language. |
| Experience: | * Fifteen (15) years of experience in the design and supervision of road maintenance works, including specific experience in the design and construction of sealing works. * To include ten (10) years of international experience. * Prior work experience in Mongolia and knowledge of applicable regulations and standards on construction will be considered an advantage. |
| Tasks: | * The RME will be responsible for reviewing the preliminary designs for the maintenance works prepared by the Contractors for the contracts; * supporting the TL/ER in the supervision of construction as a Senior Resident Engineer; * advising on road rehabilitation works throughout the contracts and providing advice and training to the Contractor, PMO and MRT as required; * and providing inputs to progress reports and meetings. * The RME will also be responsible for the technical due diligence study of the proposed road rehabilitation and compliance with relevant international and national standards, reviewing the cost estimate against recently awarded contracts in the country, reviewing traffic forecasts, and making an economic analysis following WB’s procedures for such analyses. |
| **Position:** | **IK3 - Contract Management Specialist** |
| Qualifications: | * Degree in Business Administration, Contract Management, Construction Management, or a related field; Master’s degree preferred. * Fluent in English language. |
| Experience: | * Fifteen (15) years of experience in contract management within the construction industry and profound knowledge of contract law, procurement processes, and project management principles. * To include ten (10) years of international experience. |
| Tasks: | * The CMS will be responsible for Drafting, reviewing, and finalizing contracts between the client and contractors for construction projects, ensuring adherence to legal and organizational standards and resolving disputes during project execution; supporting the PMO and MRT in procurement activities, including preparing tender documents, evaluating bids, and recommending contract awards; Maintaining comprehensive records of contract documentation, correspondence, and project status reports. |
| **Position:** | **IK4 – Road Safety Engineer** |
| Qualifications: | * Degree in a relevant field. * Fluent in English language. |
| Experience: | * Fifteen (15) years of experience in highway design with particular expertise in road safety improvements. Ability prepares engineering drawings, specifications, and cost estimates of road safety improvements. Extensive experience in developing solutions to road safety challenges and undertaking road safety audits is preferred. * To include eight (8) years of international experience. |
| Tasks: | * The RSE will be responsible for undertaking road safety audits. |
| **2. National Key Experts** | |
| **Position:** | **NK1 - Deputy Team Leader/Engineer’s Representative** |
| Qualifications: | * Degree in civil engineering preferably with post graduate qualification in highway engineering. * Excellent knowledge of English language |
| Experience: | * Have at least fifteen (15) years of general professional experience * Have a focus of professional experience in supervision * Have at least ten (10) years of professional experience related to construction/ reconstruction / rehabilitation of roads * Have at least two (2) projects in the designated capacity; * having experience of work under FIDIC conditions of contract. |
| Tasks: | * Assist the TL/ER with the administration and supervision of road construction works including coordination and liaison with the Employer; * day-to-day construction supervision through the Resident Engineers and other site staff; review of daily reports prepared by site staff; * preparing and maintaining progress monitoring schedule; * reviewing and approving shop drawings and preparation of as-built drawings. |
| **Position:** | **NK2 - Road Design Engineer** |
| Qualifications: | * Degree in civil engineering preferably with post graduate qualification in highway engineering. * Excellent knowledge of English language |
| Experience: | * Have at least fifteen (15) years of general professional experience * Have at least eight (8) years of professional experience related to design for construction/reconstruction/rehabilitation of roads * Have at least three (3) design in the designated capacity; |
| Tasks: | * The RDE will be responsible for leading the development of detailed road designs, ensuring compliance with national standards, providing technical support throughout the design and construction phases, conducting technical due diligence studies for road rehabilitation projects and reviewing cost estimates |
| **Position:** | **NK3 - Bridge Design Engineer** |
| Qualifications: | * Degree in civil engineering preferably with post graduate qualification in highway engineering. * Excellent knowledge of English language |
| Experience: | * Have at least ten (10) years of general professional experience * Have at least eight (8) years of professional experience related to design for bridges and road structures * Have at least three (3) design in the designated capacity; |
| Tasks: | * The RDE will be responsible for leading the development of detailed road designs, ensuring compliance with national standards, providing technical support throughout the design and construction phases, conducting technical due diligence studies for road rehabilitation projects and reviewing cost estimates |
| **Position:** | **NK3 - Road Safety Specialist** |
| Qualifications: | * Degree in civil engineering preferably with graduate qualification. |
| Experience: | * Have at least eight (8) years of general professional experience; * Have a focus of professional experience in supervision. * Have at least 3 years of professional experience related to construction/ reconstruction / rehabilitation of roads |
| Tasks: | * The RSS will assist the SRE with all road safety aspects of maintenance packages being implemented during the project. |
| **Position:** | **NK3 - Environment Safeguard and Impact Assessment Specialist** |
| Qualifications: | * Bachelor’s degree on environmental science, environmental engineering, or relevant fields |
| Experience: | * A minimum of eight (8) years of work experience in environmental impact assessment, environmental management planning and monitoring. * Having experience in environmental impact assessment on road infrastructure projects will be an advantage. * Experience in a consultant for conducting studies on ESIA, including GEIA and DEIA * Experience in E&S baseline data collection, analysis and report preparation with international financing institutions * Key personnel of the group responsible for representing it in communications with WB/MRT/PMO must have a good command of English (spoken and written). |
| Tasks: | The ESIAS will closely work with the PMO and the DTL/SRE and support the EA and PMO in   * (i) meeting full environmental compliance of the project throughout the project implementation; * (ii) Conducting environmental impact monitoring indicated in the environmental monitoring plan of the EMP (this task may be subcontracted to an environment monitoring firm/individual licensed by the Ministry of Environment and Tourism (MET)); * (iii) coordinate with the environmental monitoring stations/firm to ensure EMP and EMoP to be duly implemented; * (iv) Conduct regular site visits and assess the EMP implementation. Any non-compliance is found, report your concern and propose a corrective action(s) to contractors and the PMO; record non-compliance and implementation of corrective actions in EMRs; * (v) During the regular site visits, conduct public survey to affected communities and inform GRM and ensure any additional concern to be heard and be appropriately dealt with; * (vi) Develop an EMP training program and provide a series of training to staff from the EA, PMO, and contractors on environmental safeguard requirements under the Mongolian environmental laws and regulations, and WB’s Safeguard Policy Statement (2009), including EMP, monitoring and reporting requirements of the initial environmental examination (IEE) and EMP, grievance redress mechanism (GRM), preparation and implementation of construction site EMP, and other international best practices on environmental, health and safety management; and * (vii) Prepare annual environmental monitoring reports with quality and submit to the EA through PMO and WB, incorporating all the comments from PMO, the EA, and WB; * (viii) if any change in the project scope, and engineering design change occurred during the project implementation, assess the need of IEE, EMP, EMoP revision; consult with PMO, the EA, and WB for revision and/or addition; and prepare and submit revised documents accordingly. * Also, carry out a due diligence study of the road rehabilitation, including preparation of an IEE and appropriate mitigation plan. |
| **Position:** | **NK4 - Social Development, Gender, and Resettlement Specialist** |
| Qualifications: | Bachelor’s degree in social sciences/anthropology and sociology. |
| Experience: | * A minimum of eight (8) years’ experience working in resettlement, gender mainstreaming, livelihoods development and other social development areas * Experience in conducting public consultation and preparing resettlement action plan Key personnel of the group responsible for representing it in communications with WB/MRT/PMO must have a good command of English (spoken and written). |
| Tasks: | The SDGRS will coordinate the overall capacity-building support, guidance and oversight on resettlement, social development and gender. The SDGRS will also   * (i) Prepare a detailed work plan with a training plan for inclusion in the inception report; * (ii) Support the EA and PMO (social development specialist) in meeting full social safeguards and social development related compliance, and implementation of the GAP and SDAP; * (iii) Engage a service provider to implement livelihood development activities and oversee their work, * (iv) Conduct regular site visits to monitor safeguards compliance and GAP/SDAP implementation, propose corrective action(s) to the PMO if any; record non-compliance and implementation of corrective actions and send special reports to WB and EA; * (v) Provide oversight during construction period on any temporary impacts if any; * (vi) Conduct capacity building trainings/workshops for PMO staff, relevant government officials including those at soum, aimag levels, contractors and any other relevant stakeholders outlined in SDAP and GAP on WB’s safeguards policies, relevant social policies including GRM in effective implementation of SDGAP; and * (vii) Conduct public survey with communities and assess effectiveness of Grievance Redress Mechanisms (GRM) and ensure any additional concern is heard * preparation of social and gender impact assessment, including a collection of baseline data and development of a social and gender action plans. |
| **Position:** | **NK7, NK15, NK20 - Senior Resident Engineer** |
| Qualifications: | * Degree in civil engineering preferably with post graduate qualification in highway engineering. |
| Experience: | * Have at least 8 years of general professional experience; * Have a focus of professional experience in supervision. * Have at least 5 years of professional experience related to construction/ reconstruction / rehabilitation of roads * Have at least one (1) project in the designated capacity; * having experience of work under FIDIC conditions of contract. |
| Tasks: | * The REs will report to the TL, or DTL/ER as assigned by the TL, and will be responsible for the day-to-day construction supervision of the works in the field for their assigned contracts |
| **Position:** | **NK13, NK16, NK21 - Quantity Surveyor** |
| Qualifications: | * Degree in civil engineering preferably with post graduate qualification in highway engineering. |
| Experience: | * Have at least ten (10) years of general professional experience; * Have a focus of professional experience in supervision. * Have at least eight (8) years of professional experience related to construction/ reconstruction / rehabilitation of roads * Have at least one (1) project in the designated capacity; * having experience of work under FIDIC conditions of contract. |
| Tasks: | * The QE will assist the SRE in the measurement of the works and materials on Site, checking the Contractor’s Statements, preparing Interim Payment Certificates, and evaluating variation orders for both contracts. |
| **Position:** | **NK8, NK11, NK17, NK22, NK26 – Resident Engineer** |
| Qualifications: | * Degree in civil engineering preferably with graduate qualification in highway engineering. |
| Experience: | * Have at least eight (8) years of general professional experience; * Have a focus of professional experience in supervision. * Have at least five (5) years of professional experience related to construction/ reconstruction / rehabilitation of roads |
| Tasks: | * The REs will report to the TL, or DTL/SRE/ER as assigned by the TL, and will be responsible for the day-to-day construction supervision of the works in the field for their assigned contracts |
| **Position:** | **NK9, NK12, NK18, NK24, NK27 - Materials Engineer** |
| Qualifications: | Degree in civil engineering preferably with graduate qualification in highway engineering. |
| Experience: | * Have at least eight (8) years of general professional experience; * Have a focus of professional experience in supervision. * Have at least five (5) years similar experience in supervision of road construction and maintenance works, and laboratory and field testing of earthworks and flexible pavement materials as part of the quality assurance process. |
| Tasks: | * The MEs will report to the RE or SRE and will be responsible for the day-to-day supervision of compliance with material specifications and testing in the field for both contracts. |
| **Position:** | **NK10, NK14, NK19, NK25, NK28- Survey Engineer** |
| Qualifications: | * Degree in civil engineering and/or qualified and registered topographic surveyor |
| Experience: | * Have at least five (5) years of general professional experience; * Have a focus of professional experience in supervision. * Have at least three (3) years’experience as a Survey Engineer in the design and construction of highway projects. |
| Tasks: | * The SE will work with the RE to carry out topographic surveys of work sites; check the setting out of the Works by the Contractor; and the preparation of as-built drawings for both contracts. * The SE will also work with the QE to measure completed works. |
| **Position:** | **NK23 - Bridge Engineer** |
| Qualifications: | Degree in civil engineering preferably with graduate qualification in highway engineering. |
| Experience: | * Have at least eight (8) years of general professional experience; * Have a focus of professional experience in supervision. * Have at least (five) 5 years of professional experience related to bridges and road structures |
| Tasks: | * The BE will assist the TL and REs for all bridge aspects of packages being implemented during the project including review of existing designs and issuing instructions to the contractors, review of method statements, shop and as-built drawings. |

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