

Democratic Socialist Republic of Sri Lanka

**Ministry of Public Administration &
Disaster Management**



National Building Research Organisation

REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES PROJECT (RLVMMP)

Terms of Reference

For

Full Time On- site Supervision of Construction of 27 Critical Sites Located in 9

Districts (Kandy, Kurunegala, Kegalle, Ratnapura, Matara, Badulla, Kalutara,

Gampaha, Colombo) of 6 Provinces (Central, North-Western, Sabaragamuwa,

Southern, Uva and Western Provinces)

in Sri Lanka

January 2019

1. Introduction

The mountainous central Sri Lanka, having highly fractured and folded basement rock overlain by residual soil and colluvium is in increased risk of landslide disasters causing loss of lives, damage to infrastructure, destruction of property and impacts on livelihood and local economy.

The topographically steep slopes and geologically weak strata can identify as the main natural contributors to landslides triggered by severe, intense rainfall, exacerbated by climate change.

The Government of Sri Lanka (GOSL) through its Ministry of Public Administration and Disaster Management (MPA & DM) has identified requirement of prevention and mitigation of disasters, as a national priority, to lower the risk of landslides and decrease their severity towards building a “Safer Sri Lanka” as per the Vision 2025 Strategy Document of MPA&DM.

2. Project Background

The project of “Reduction of Landslide Vulnerability by Mitigation Measures Project” (RLVMMP) is being identified as one of the positive steps taken by MPA & DM to achieve its vision 2025 strategy document.

The MPA & DM being the executing agency wishes to obtain the service of National Building Research Organization (NBRO) as an implementing agency of this project. The GOSL and from an expected loan from Asian Infrastructure Investment Bank (AIIB) will finance the project.

The project consists of 147 identified sites prone to landslides, which will be implemented in two phases. The Phase one (Phase I) will consist of 27 critical sites and Phase two (Phase II) will include remaining 120 sites. The Phase II includes 10 sites under jurisdiction of Road Development Authority, 20 sites under jurisdiction of Sri Lanka Railway Department (SLRD) and balance of 90 sites are either other government owned or private owned lands those identified and shortlisted by NBRO based on the level of vulnerability of the landslides.

This Terms of Reference (TOR) intends to obtain the service of a potential consultant company to provide full time on-site supervision and the contract administration activities related to the construction of 27 sites included under Phase I of this project. The NBRO is responsible for Design, Procurement and Awarding the Civil Works Contracts in accordance with International Open Competitive Tender (IOCT) procedures and/or National Open Competitive Tender (NOCT) Procedures. These Civil Work Tender documents will be prepared based on local or international Standard Tender Documents.

A separate Project Management Unit (PMU) will manage the overall project related procurements, administration and like others.

3. Objective of the Project

The overall objective of the Project is to improve the landslide risk management effort of the country by introducing required mitigation measures and thereby, redress the present situation of high risk imposed on vulnerable communities and infrastructure.

The **objectives** of this assignment for supervision on construction of 27 sites are to ensure that the landslide sites are constructed to the required standard and concluded within the Contract Sum and given time table for completion and to ensure suitable service levels that will lead to reduce the high risk imposed on vulnerable communities and infrastructure.

4. Project Location and Scope of the Work Contracts

The Phase I of the project comprises 27 sites situated in 9 districts (Kandy, Kurunegala, Kegalle, Ratnapura, Matara, Badulla, Kalutara, Gampaha, Colombo) of 06 provinces (Central, North-Western, Sabaragamuwa, Southern, Uva and Western provinces) in Sri Lanka.

The site map of the 27 sites and details of the sites are attached under the Annexure (i) and (ii) respectively.

The Civil Works of 27 sites have been packaged under four (4) Works Contracts packages. The Works to be executed under the Contracts comprise, but are not limited to the following:

- (i). Site clearance involving light bush clearing, removal of hedges and trees, top soil stripping and removal and disposal of old drainage structures;
- (ii). Provision or improvement of surface drainage using peripheral drains, step drains made of concrete, rubble masonry, or other material appropriately provided with lining and flexible joints;
- (iii). Development of sub-surface drainage system using collection wells and lateral drains to enhance stability of the slide by lowering the groundwater table;
- (iv). Slope terracing with appropriate soil breaks and surface drainage;
- (v). Soil removal at the head of slide and loading at the toe area along with suitable Retaining wall type constructed to support the slope;
- (vi). Earth reinforced with soil nailing or geotextile;
- (vii). Control piles driven deep into the hard stratum below;
- (viii). Earthworks including cut/fill in soft and hard materials, grading and reshaping of the unsuitable slopes;
- (ix). Excavation and filling for structures including gabion works;
- (x). Surface protection with turf, Hydroseeding and similar measures;

(xi). Protection of rock falling with rock netting, reforestation and like;

The Defects Notification Period (DNP) of each Civil Work Contract shall be 12 months.

5. Working Arrangement

The Consultant shall fulfil, to the highest professional standards, the role of the Engineer's Representative to supervise the construction of the Works and ensure that they are executed in accordance with the Conditions of Contract, Specifications and Contract Drawings or any amendments thereto; and to ensure that the Works are within the Contract Price and Contract Period allowed under the Contract or any agreed amendments thereto.

The Supervision Consultant is expected to manage the Phase I Civil Work Contracts (27 critical sites) under one Team Leader who shall responsible for delivering the entire assignment under one consultancy contract for all sites.

The Supervision Consultant shall have his own arrangements of facilities and staff in order to carry out the given scope of services and shall include the cost in their financial proposal.

The general responsibilities of parties to the Project – Phase I will be as follows:

Party	Responsibility
MPA & DM (Ministry of Public Administration and Disaster Management)	The Executing Agency. / The Employer.
NBRO (National Building Research Organization), through its Director of PMU(Project Management Unit)	Investigation, Design, Procurement Consultant for 27 sites (Phase I). The Implementing Agency and the Engineer under the Contract for Civil Works.
Supervision Consultant	Full time, day to day site supervision and contract administration work of construction of 27 sites, being the Engineer's Representative in accordance with the Contract for Civil Works and the health and safety and environmental and social measures set out in the Environmental and Social Management Plans for each site.
Contractors	Construction and remedying any defects therein under the Contract for Civil Works

6. Duration of the Consultancy Services

The Consultancy Supervision Contract duration is twenty-seven- (27) calendar months. This period includes 12 months for construction, 12 months for Defect Notification Period and additional 3 months allowing for the staggered commencement of works for all 4 Civil Work packages.

The Commencement of four (4) Civil Work packages may differ from each other, but will fall within 27 calendar months.

7. The Consultancy Scope of Services

General

The Consultant will be appointed as the Engineer's Representative in accordance with the supervision of Civil Work Contracts and shall provide services including but not limited to the following:

- Recommend to the Engineer for necessary instructions for commencement, possession of site and initial submissions required by the Civil Work Contracts;
- If any discrepancy between the design and existing site conditions are found the Consultant shall notify that to the Engineer immediately. This assignment shall be carried out as soon as possible before the physical construction activities are carried out;
- Prepare for implementation of supervision activities and apply a comprehensive and documented quality assurance framework;
- Supervise the work contracts at the role of the "Engineer's Representative" as described in the Conditions of Contract by deploying approved, qualified and experienced staff;
- Carry out necessary assessments, monitoring and management of occupational health and safety measures, management of environmental and social impacts and compliance with the applicable laws and regulations as part of the implementation of Environmental and Social Management Action Plans;
- Monitor and report on all aspects of the work Contracts, during the supervision stage;
- Carry out all required measurement, validation, verification and recommend contractor's all payment applications to the Engineer for payments;
- Advise, assist and support the Engineer in contract monitoring, reporting and financial management and all other aspects relating to proper management of the contract;
- Review the Contractor's work program and working drawings and issue necessary comments and advise the Engineer accordingly;

- Review and recommend for approval of insurance policies, Bank securities and other initial contractual documents submitted by the Contractor;
- Prepare monthly, quarterly progress and completion reports; and
- All other objectives reasonably relating to successful execution of the construction supervision.

Works Supervision

The Consultant shall be fully responsible for site supervision of the construction until the Civil Works Contract/s are completed and during the Defects Notification Period (DNP)

The responsibilities of the Consultant will include the services listed below, but not limited to:

- (i). Prepare and submit a Project Quality Assurance Management Manual (PQAMM) for approval of the Engineer and the financing agency.
- (ii). Make sure that all information is available and the documents and materials are sufficient for timely and orderly execution and completion of the Works by the Contractor.
- (iii). Liaise where necessary with the Engineer and the other stakeholders in addressing issues that are directly or indirectly affecting the project and its vicinity.
- (iv). Identify and locate beacons and benchmarks, including field checks to confirm integrity of survey data so as to enable the Contractor subsequently set-out and execute the Works.
- (v). Ensure the contractor and any subcontractors follow best-practice in regard to the health and safety of the workers and staff, and ensure they comply national ESHS legislation, with the requirements of the Environmental and Social Management Framework (ESMF), the Social Management and Resettlement Planning Framework (SMRPF) and with the Environmental and Social Management Plans (ESMPs) prepared for each site.
- (vi). Assign experienced and qualified staff and replace any key professional (if needed) for this assignment, provided obtaining of prior approval for all staff and their timing for mobilization. If the Consultant intends to assign any discipline above the age of 65 years, at the time of mobilizing to this assignment the Consultant shall provide a medical certificate of fitness of such employee from a reputed medical institute of the Employee's country to the approval of the Employer.
- (vii). Assess any proposals for modifications in design documents or construction details (if submitted by the Contractor) which may be reasonable and recommend to the Engineer for approval.

- (viii).Review and recommend for approval of detailed additional working drawings showing the construction layouts, concrete formwork placement details, bar bending schedules, etc. which may be submitted by the Contractor.
- (ix).Carry out inspection of all working areas during the execution of the Work, inspect manufactured items installation and carry out test on materials and equipment in factories and laboratories to ensure that all conform to the agreed specifications and shall issue relevant certificates of conformity.
- (x).Carry out tests on soils, materials and operations required to ascertain that the Work is in compliance with the specifications and assure the quality.
- (xi). Ensure that the Contractor complies with sizes and dimensions shown on the detailed designs and associated working drawings and identify any discrepancies in advance to the constructions.
- (xii).Ensure that the utilization of materials by the Contractor are in conformity with the specifications.
- (xiii). Ensure the Contractor is adhered to drawings, specifications and any other details given in the Contract.
- (xiv).Check and approve all arrangements made during the construction so that traffic flow on existing roads, safety of the workers, third party personnel or properties are not unduly interrupted.
- (xv).Issue site instructions and review Contractor's request for Variation orders and day works orders as appropriate.
- (xvi).Inform the Engineer of any problem which has arisen or might arise in connection with the contract and make recommendations for solving the same in a timely manner.
- (xvii).Ensure that all contractual claims raised by the Contractor are analyzed fully and a comprehensive claim(s) report in two (2) copies containing the Consultant's analysis and recommendations is prepared and submitted timely to the Engineer for his consideration.
- (xviii).Assist The Engineer in any dispute that may arise with the contractor and give firm opinion on any claim, which the Contractor may put forward, by drawing up a report including elements on which the judgment is based.
- (xix).Prepare reports and provide assistance, give necessary instructions to the Contractor and assist the Engineer as necessary and as required, for the resolution of disputes through Dispute Adjudication Board, Amicable settlement or Arbitration.
- (xx).Prepare and submit an Inception Report, at the beginning of the Work commencement and thereafter Monthly Progress Reports to be submitted at the end of every month.

- (xxi).Conduct monthly Site progress meetings, which are to be attended by Consultant, Contractor's Representative; attending and making presentations on progress at the project coordinating committee meetings and other similar progress reviews and prepare minutes of meeting of them and also to attend any actions thereof in time.
- (xxii).Prepare and recommend Interim Payment Certificates, Final Payment Certificate/ final accounts, Taking Over Certificate and Performance Certificate, to the timing and in compliance to the applicable Contract Conditions, for the Engineer's approval.
- (xxiii).Ensure handing over of As-built drawings, records, any assets belonging to the Employer and Maintenance Manuals at the end of each Civil Works Contract.
- (xxiv).Prepare a Project Completion Report at the end of the project and submit to the Engineer.
- (xxv).Ensure the Contractor complies with safety mitigation measures related to site, roads, general public, third party property, archeological property and like as stated in the contract document.
- (xxvi).The Consultants shall supervise the remaining and outstanding works contained in agreed "snag list of defects" including the administrative aspects of the works during the Defects Notification Period. During this period, the Consultant shall also draw the attention of the Contractor to any defects as soon as such defects are noticed on the finished construction and the Consultant shall supervise the subsequent remedial works.
- (xxvii).In addition to above, the Consultant shall report and submit necessary detail particulars to the Engineer on all matters pertaining to this Contract as given and described in the Section 9 of this TOR.

Detailed Description of the Services

1. Review Contractor's work programs and monitoring work progress

- The Consultant shall scrutinize the Contractor's work programme, schedule of plant and cash-flow projections. Where appropriate he will request clarification without, however, imposing any modifications on the Contractor. The Consultant has, however, the right to reject a works programme that is either unrealistic, or unacceptable due to obstruction to general public, normal traffic flow or is unacceptable for other major considerations to be indicated by the Consultant, within stipulations of the Civil Works Contract.
- The Consultant shall inspect the Contractor's proposed borrow material sites and conduct necessary confirmatory testing before approving them for acquisition and use on the works.

- The Consultant shall review the measures for traffic management proposed by the Contractor with respect to traffic diversions and passage of traffic through the works in order to ensure minimal disruption of normal traffic flows and further to ensure that the measures proposed will in no case compromise the safety of the general public or third party properties.
- The Consultant shall confirm the final setting out data and planned road levels, lines and levels of existing structures like drains, retaining structures, boundaries etc., by way of site instructions to the Contractor to allow him to proceed with the detailed setting out of works.
- The Consultant shall be responsible for identifying those items requiring the approval of the Engineer and bring these items to his attention. The Consultant shall be responsible for informing the Contractor clearly and unambiguously on decisions made by the Engineer on these and all other issues relevance to the proper execution of the Contract.
- The Consultant shall organize monthly progress site meetings and shall monitor the progress of the works and shall report on these issues to all parties concerned in his Monthly Progress Reports.
- The Contractor is responsible for the construction and handing over of the works in accordance with the Contract. The Consultant shall ensure that any modification/variation under the Contract is approved in accordance with the provisions in the Conditions of Contract.
- The Consultant shall ensure that an adequate record of measurements is kept for the purpose of establishing accurate as-built drawings and that a sufficient number of fixed monuments be established as permanent reference of coordinates.

2. Verification of Quality of works

The Consultant shall verify that all works are carried out in conformity with the Standard and Special specifications. He shall request the Contractor to issue written method statements to both the Contractor's foremen and the Consultant's inspectors for each field activity and shall ensure that the agreed work methods are strictly adhered to.

3. Verification of Quantity of executed works

The Consultant shall verify the accuracy of the primary setting out of works in accordance with approved design. The Consultant shall ensure that adequate references will be established for the verification of quantities to be brought into the works.

4. Verification of Quality of materials used

The Contractor shall test all materials to be used for the works prior to incorporating them in the works. The Consultant shall check the quality of these materials in accordance with the Conditions of Contract for compliance with the Standard and Special Specifications.

The Consultant shall in principal, carry out these tests on site in a site laboratory to be provided through the Works Contract. A Laboratory Technologist is to be supplied by the Consultant, while lab attendants to assist him will be provided by Contractor under the Works Contract.

Tests for which the site laboratory does not have the equipment required may be carried out in third party laboratories under the relevant stipulations of the conditions of the Work Contract and shall be paid through the Work Contract.

5. Measurements

The Consultant and the Contractor shall measure jointly all works completed, using mutually agreed methods and frequencies. Wherever the Consultant finds necessary, additional verifications of the measurements shall be undertaken.

In addition, the Consultant and the Contractor shall estimate jointly and on a weekly basis the progress of the works. Towards the end of each month, these estimates will serve to establish the quantities payable under the Contractor's interim payment application for that period.

The Consultant shall at regular intervals finalize all measurements taken and agreed with the Contractor for completed sections of the Works. The took off quantities shall be used as the basis for the draft final account which prepares after the Taking over Certificate is issued and will become final upon agreed with the Contractor. The draft final accounts shall be established during the month following Taking Over of the Works and shall be analyzed in the Final Project Completion Report.

6. Compilation of Progress Reports

The Consultant shall prepare Monthly Progress Reports to inform all parties concerned in a transparent and concise way about the progress of works (including critical path analysis and progress photographs), the financial situation of the project and about possible difficulties encountered. The Consultant shall prepare Quarterly Progress Reports at the end of every quarter of the financial year as well as for every implementation support mission to be carried out by the Financing Agency and/or his representatives, Technical Review/Audit missions, etc.

The Consultant shall maintain documentary and photographic records. The documentary records shall include a Daily Site Diary and details of all contractual correspondence and data; all work stoppages or delays; accidents on site; official visitors to site; weather records; details of all daily site activities showing the start and end time and full details of the personnel and equipment or resources employed per activity. It shall contain detailed records of the Contractor's equipment on site and its date of manufacture, previous hours worked and condition, its precise date of arrival or removal from site, the date commissioned to commence work, its availability and utilization. Equipment availability figures for each category of equipment shall be established.

In respect of photographic data, the Consultant shall maintain a record of digital progress photographs taken throughout the Contract period at set locations and of any construction activity of technical or contractual interest at any time. Each photograph is to be captioned with; reference number, time, date, precise location, subject, and points of particular note. These digital data shall be stored on a CD-ROM together with the captions and shall be made available to the Engineer on a monthly basis.

7. Advice on problems arising during the execution of the works

In the event problems of engineering nature arise during the execution of the works, the Consultant will address these problems and suggest solution. In the event the nature of these problems will justify so, they will be subject to a special report to the Engineer. Any instruction to the Contractor providing a clarification of or a variation to specifications and/or drawings will be given in writing.

All the Variation Orders shall be reviewed and recommended to the Engineer for approval.

Problems of engineering and /or non-engineering nature shall be brought to the attention of the Engineer, who will decide whether these problems can best be analyzed on site by the Consultant or referred to other competent bodies.

8. Monitoring of use of resources and protection of the environment

The Consultant shall monitor human and material resources mobilized by the Contractor and keep a comprehensive record of these resources and the use made thereof. In his periodic reporting, the Consultant shall relate resources mobilized and works performed. Unbalanced resources or discrepancies between projected outputs and works performed will be brought to the attention of the Contractor.

The Consultant shall monitor the environmental impact of the works and issue the necessary instructions to the Contractor whenever avoidable damage to the environment occurs or is

likely to occur. In particular, the Consultant shall monitor the full respect of the following recommendations for environmental protection during implementation of the project:

- Advise on proper location of Contractor's camp sites to an area so as to minimize disruption to local population, fauna and flora and watercourses; check the provisions of adequate drainage facilities and treatment of sewage and waste disposals and ensure that camp areas are dismantled and rehabilitated once construction is completed.
- Minimize water and soil pollution as a result of the works.
- Minimize noise and dust levels.
- Shape and landscape all borrow pit and quarry sites.
- Minimize the risk of soil erosion, stabilize bridge sites and the inlets and outlets of culverts on erosive soils with gabions or stone pitching.

9. HIV/AIDS awareness campaigns

In this respect, the Consultant shall request the local District Secretariat/District Medical Officer through Engineer to carry out structured and regular HIV/AIDS awareness campaigns to target the workers, staff, any subcontractors and their workers on the project.

10. Environmental, Social and Health and Safety considerations

- Review and approve the Contractor's Environment and Social Management Action Plan (C-ESMP), including all updates and revisions (not less than once every 6 months);
- Review and approve ESHS (Environmental, Social, Health and Safety) provisions of method statements, implementation plans, Code of Conduct, GBV (Gender Based Violence)/ SEA (Sexual Exploitation and Abuse) prevention and response action plan, drawings, proposals, schedules and all relevant Contractor's documents;
- Review and consider the ESHS risks and impacts of any design change proposals and advise if there are implications for compliance with Environmental Assessment (EA), Environmental Management Action Plan (EMAP), Social Assessment Plan (SA), Resettlement Policy Framework (RPF) consent/permits and other relevant project requirements;
- Undertake audits, supervisions and/or inspections of any sites where the Contractor is undertaking activities related to the Works, to verify the Contractor's compliance with ESHS requirements including its GBV/SEA obligations, with and without contractor

and/or Employer relevant representatives, as necessary, but not less than once per month;

- Undertake audits and inspections of Contractor's accident logs, community liaison records, monitoring findings and other ESHS related documentation, as necessary, to confirm the Contractor's compliance with ESHS requirements;
- Agree remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor's ESHS obligations;
- Ensure appropriate representation at relevant meetings including site meetings, and progress meetings to discuss and agree appropriate actions to ensure compliance with ESHS obligations;
- Check that the Contractor's actual reporting (content and timeliness) is in accordance with the Contractor's contractual obligations;
- Review and critique, in a timely manner, the Contractor's ESHS documentation (including regular reports and incident reports) regarding the accuracy and efficacy of the documentation;
- Undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ESHS issues;
- Establish and maintain a grievance redress mechanism including types of grievances to be recorded and how to protect confidentiality e.g. of those reporting allegations of employment of child labor or GBV/SEA;
- Ensure any GBV/SEA instances and complaints that come to the attention of the consultant are registered in the grievance redress mechanism;
- Mitigate or prevent adverse impacts of the project on communities and produces appropriate corrective or preventive actions.

11. Coordination with third parties

The Consultant shall ensure that all parties involved in the works will be informed about the developments on site relevant to their respective competences. Representative of public utility firms, traffic police, county government and water management bodies shall be invited from time to time to site whenever necessary to hold special coordination meetings.

12. Analysis of Contractor's claims

Any claims submitted by the Contractor during the course of the works will be analyzed by the Consultant in the time period specified in the Consultant's contract and appropriate advice will be given to the Engineer on their validity. These services are deemed to be integral part of the responsibilities of the Consultant under this assignment and do not entitle him to any additional fees.

13. As-built drawings

The Consultant shall keep a precise record of all modifications and enter these modifications in electronic format in the relevant drawings. At the end of Defects Notification Period of the works the electronic files will be edited and a comprehensive file titled "As built drawings" will be issued to the Employer in electronic format and hard copy.

14. Substantial Completion of the Works

When the Works are nearing substantial completion, the Consultant shall inspect the works jointly with the Contractor and shall establish lists specifying the remaining works. These works may concern corrections to work already done or completion of outstanding works. The Consultant shall notify the Engineer that the works are substantially complete and shall be requested for inspection for handing over to the Employer.

The Consultant shall prepare a Taking over Certificate to be signed by the parties concerned after the Substantial Completion inspection. A list of outstanding works and any defects noted during the inspection (the snag list) will be appended to the certificate, specifying the time within which these works are to be completed or when defects have to be corrected.

At the end of the Defect Notification Period, and provided that all defects shall have been completed to his satisfaction, the Consultant shall notify the Engineer that the Contractor has completed all outstanding works and has remedied all defects at the end of the defects notification period and an inspection to be carried out. The full Retention Money guarantee will be released to the Contractor at that time.

8. Team Composition & Qualification Requirements for Key Professionals

It is the Consultant's responsibility to provide all required inputs of Key Professionals for the assignment; provide necessary logistic arrangements to render these services efficiently and diligently. It's estimated that **137 person months** will be required to implement this assignment timely and orderly on all 27 sites, depending of their time table for construction. However, the Consultants are allowed to propose additional to the proposed key specialists, but only those indicated below will be considered and their CVs evaluated in a particular proposal evaluation. The Consultants shall deploy the designed, adequately qualified and experienced junior professionals and technical support staff to assist the key professionals to render these services in a time bound manner.

CVs of those technical support staff are not required, however, their inclusion and function will be considered when reviewing strength and/or weaknesses of a proposal.

The minimum qualifications requirements **of the key professionals** are indicated in the Table 1 below.

Note: Contract period is 27 months composed of: Civil Works construction for each package of 12 calendar months and 12 calendar months for DNP, while additional 3 calendar months are allowed to allow for staggered commencement of certain works packages.

Table 1 - Key Professionals

E.1	Team Leader (T,FT)	1 Nr	16	Person months
	<p>Professionally qualified (locally or Internationally) B.Sc. Civil Engineer with a minimum of 15 years' experience in construction supervision and at least 8 years' experience in landslide related construction out of which minimum 5 years' in position as Team Leader of professionals in projects of similar nature and scope.</p> <p>Responsible for the overall administration of the Contract and to act as the Engineer's Representative under the Civil Work contracts in position as the Consultant's focal point in all matters relating to the Project under this assignment.</p>			
E.2	Senior Project Engineer (T,FT)	1 Nr	14	Person months
	<p>Professionally qualified, B.Sc. in Civil Engineering or equivalent with minimum of 10 years' experience in landslide operations and contract supervision activities.</p> <p>Responsible for assisting the team leader in terms of supervision works and all technical matters.</p>			
E.3	Senior Contract Specialist/ Senior Quantity Surveyor/Senior Engineer (T, FT)	1 Nr	14	Person months
	<p>Professionally qualified, B.Sc. in Quantity Surveying or equivalent with minimum of 10 years' experience in Civil Work Contract Administration and management.</p> <p>Responsible for assisting with Contract issues, document finalization such as final payment certificates, Claims Analysis and Claims Management.</p>			
E.4	Senior Geologist (T, PT)	1 Nr	7	Person months
	<p>Professionally qualified, B.Sc. in Geological Engineering or equivalent with minimum of 12 years' experience, out of which 10 years' experience as Geologist involved in major civil works projects.</p> <p>Responsible for geological survey.</p>			
E.5	Senior Geotechnical Engineer (T, FT)	1 Nr	14	Person months

	<p>Professionally qualified, or Masters in Geotechnical Engineering with minimum of 10 years' experience.</p> <p>Responsible for all matters related to geotechnical issues of the Project.</p>			
E.6	Environmental, and Social Specialist (T, PT)	1 Nr	4	Person months
	<p>Professionally qualified, B.Sc. in Environmental Management and/ or Social science management, Geography, Anthropology, Sociology, Environmental Science or a closely related discipline with minimum of 8 years' experience on environmental and social issues in experience working on environmental management and be able to demonstrate a sound knowledge of environmental and social issues (such as evaluating environmental management Action plan (EMAP) or Environmental Assessment (EA), Social Assessment (SA), Resettlement Action Plan (RAP) and Social management framework (SMF), Resettlement Policy Framework (RPF), initiatives and impact assessment and mitigation measures in developing and tropical countries. The specialist shall have proven experience in impact assessment management within the landslide mitigation sector in developing countries and preferably participation in one project related to OPBRC / PBC type of contract. Fluency in both written and spoken English and ability to communicate ideas freely is essential. Natural and social environmental analysis and monitoring.</p> <p>Responsible for implementing Environmental Social Management Action Plan (EMP) and monitoring the mitigation and resettlement.</p>			
E.7	Health and Safety Specialist (T,PT)	1 Nr	4	Person months
	<p>B.Sc. degree in relevant field with minimum of 8 years' experience in Health & Safety field in Construction Contracts.</p> <p>Responsible for implementing of Health and Safety procedures and monitoring and mitigating of such issues.</p>			
E.8	QA/QC Engineer (T,PT)	1 Nr	10	Person Months
	<p>B.Sc. in Civil/Material Engineering or equivalent with minimum of 8 years' of experience, out of which 4 years' experience as QA/QC Engineer</p> <p>Responsible for quality assurance and quality control of material</p>			
E.9	Site Engineer (S,FT)	4Nr	54	Person Months
	<p>B.Sc. in Civil Engineering or equivalent with minimum of 5 years' experience, out of which 1 years' experience in Landslide related projects.</p> <p>Responsible for supervision of construction work.</p>			
Total		137	Person months	

(T-Team Leader's office, S- Site offices) (FT – Full Time, PT- Part Time)

9. Reporting Requirements and time schedule for deliverables

The Consultant shall keep submitting and maintaining necessary reports, formats, data sheets, schedules, work supervision programme, certificates, drawings, specifications, catalogues and any other contemporary records.

The reports and submissions by the Consultant shall include following detail particulars but not limited to the given criterions.

(i). Project Quality Assurance Management Manual (PQAMM)

This shall describe all quality aspects of the supervision, among which: methods and procedures for quality control of works and materials and supervision services, laboratory and field testings' results interpretations and application in everyday work on site. This report shall be submitted in two (2) hard copies two (2) copies in electronic format (in CD-ROM).

(ii). Inception Report

Inception report shall be submitted twenty-one (21) days after commencement of the service and shall summaries the Consultant's and Contractor's state of mobilization, the Contractor's special obligations, records of initial site meetings and the proposed site communication procedures and record keeping. This report shall be submitted in two (2) hard copies two (2) copies in electronic format (in CD-ROM).

(iii). Monthly progress reports

The Consultant shall prepare monthly progress reports in every month, for the duration of the works contract, including the Defects Notification Period. These are to be submitted in four (4) hard copies and four (4) copies in electronic format (in CD-ROM) **for each works contract (package)** not later than ten (10) days after the end of the month being reported on. The content and format of the monthly progress report, shall be agreed with the Engineer.

This report will provide a brief, but comprehensive end-of-month progress assessment for each contract. It will include schedules of claims and variation orders, tabulated and graphical representations of physical and financial progress compared with the Work Programme and Cash Flow Forecasts, relevant photographs and details of impediments to the Works and proposals for overcoming them. The reports should also include information on Contractors' plant, equipment and staffing, weather conditions, accidents on site and any other relevant details.

(iv). Monthly payment Certificate

The Consultant shall assess and prepare a monthly payment certificate based on the Works completed by ascertaining joint measurements and based on the Contractor's payment application at the end of each month. The payment certificate shall contain summarized details of all works completed including variations, changes in costs, material brought to site etc. The format of the payment certificate shall be agreed with the Engineer.

(v). Quarterly progress report

Quarterly progress report will summarize all Contract activities, process of civil works, contracts variations and change orders, achievements and utilization of resources over the previous three months, highlight key issues identified, and present the consultants work plan for the coming three months. This is to be submitted in four (4) hard copies and four (4) copies in electronic format (in CD-ROM) **for each works contract (package).**

(vi). Final Account

The Consultant shall prepare a Final account for both Civil Works Contract and Consulting Works and obtain the agreement for the same from the relevant parties. The Civil Work Contract Final account shall include reconciliation of all measured works, quantities, final agreed and approved variation list, finalized provisional sum accounts, final day work accounts, final agreed list of claims by the Contractor, any other deductions, adjustments as per the Contract and shall issue a payment certificate showing any due amounts to the Contractor. This shall be submitted in accordance with the timing given in the Civil Works Contract.

(vii). The Final Completion Report

The final completion report (2 hard copies and 2 copies in electronic format-in CD-ROM) shall be submitted to the Engineer not later than one (1) month after the expiry of the Defects Notification Period.

This report shall address all aspects of the Project implementation, including financial summaries, suggestions and recommendations for future design and construction methods, technical specifications, changes in Special Conditions of Contract and in landslide mitigation activities.

(viii). Approval for working/shop Drawings.

(ix). Comment/ approved As-Built Drawings.

(x). Approval for Provisional Sum/Prime Cost Sum items.

- (xi). Supervision and Contract Administration Manual.
- (xii). Submission of operational manuals.
- (xiii). Minutes of the meetings.
- (xiv). Any other reports requested by the Engineer related to the Project.

In addition to above, following ESHS activities shall be carried out by the Consultant as and when required.

- (a) The Consultant shall provide immediate notification to the Engineer should any incident in the following categories occur while carrying out the Services. Full details of such incidents shall be provided to the Employer within the timeframe agreed with the Employer.
 - i. confirmed or likely violation of any law or international agreement;
 - ii. any fatality or serious (lost time) injury;
 - iii. significant adverse effects or damage to private property (e.g. vehicle accident); or
 - iv. any allegation of gender-based violence (GBV), sexual exploitation or abuse (SEA), sexual harassment or sexual misbehavior, rape, sexual assault, child abuse or defilement, or other violations involving children
- (b) Ensure that contractor immediate notifications on ESHS aspects are shared with the Employer immediately;
- (c) Immediately inform and share with the Employer any immediate notification related to ESHS incidents provided to the Consultant by the Contractor, and as required of the Contractor as part of the Progress Reporting;
- (d) Share with the Employer in a timely manner the Contractor's ESHS metrics, as required of the Contractor as part of the Progress Reports

Time schedule for deliverables

Unless otherwise specifically mentioned in this TOR, the Consultant is expected to complete his project scope of works pertaining to 27 sites under 4 separate Civil Contract Packages within 27 months' time period including DNP. A 'tentative time schedule' for the Civil Works Contracts is attached in Annex (iii).

10. Employer's Input and Counterpart Personnel

The Employer will directly provide certain services and facilities to the Consultant (unless otherwise mention here in this TOR the details of such facilities will be indicated in RFP), and in addition to those the supervision Consultant shall have his own arrangement of facilities which the cost shall be included in the Consultant's fee proposal.

All equipment and vehicles must be handed over to the employer in and adaptive/acceptable condition after use.

Services and Facilities directly provided by the Employer

- i. All contract documents of awarded Civil Work packages which are required for execution of this assignment (Hard copies)
- ii. Supporting service to the Consultant to arrange immigration procedures, such as entry, exit and work permits. Support for issuance of permits necessary for the Consultant's members to enter state/private land to conduct field surveys.
- iii. Assistance in customs clearance of any equipment, instruments, books and other articles to be brought into and out of Sri Lanka in connection with the implementation of the assignment.

11. Environmental and social policy

Refer annexes (iv), (v) and (vi) which have been already published in NBRO web site, "nbro.gov.lk".

Annexes

- (i). Site MAP - 27 sites
- (ii). Details of 27 sites
- (iii). Tentative Time Schedule
- (iv). Social Management and Resettlement Planning Framework
- (v). Resettlement Implementation Framework
- (vi). Environmental and Social Management Framework