

TERMS OF REFERENCE FOR

CONSULTANCY SERVICES FOR DETAILED DESIGN REVIEW, SUPERVISION AND MANAGEMENT OF WORKS CONTRACT FOR UPGRADING OF CHAMWINO - DODOMA ROAD SECTION (32KM) TO SIX (6) AND FOUR (4) LANES DUAL CARRIAGEWAY UNDER DESIGN AND BUILD CONTRACT

Abbreviations:

CBD	Central Business District,
CRR	crushed rocks,
C1	Cement Stabilized Soil grade C1,
DIST	Dodoma Integrated and Sustainable Transport Development Project,
ESCP	Environmental and Social Commitment Plan,
ESHS	Environmental, Social, Health and safety,
ESIA	Environmental and Social Impact Assessment,
ESMF	Environmental and Social Management Framework,
ESMP	Environmental and Social Management Plan,
ESS	Environmental and Social Standards,
G3	Granular soil with CRB Value $\leq 3\%$,
G7	Granular soil with CRB Value $\leq 7\%$,
G15	Granular soil with CRB Value $\leq 15\%$,
NEMC	National Environment Management Council,
IDA	International Development Association,
PDO	Project Development Objective,
MOW	Ministry of Works,
PMDM	Pavement and Materials Design Manual 1999,
RSA	Road Safety Audit,
SP	SuperPave grade asphalt concrete,
SATCC	Southern African Transport and Communication Commission
TANROADS	Tanzania National Roads Agency,
ToR	Terms of Reference,

1.0 INTRODUCTION

The Government of the United Republic of Tanzania has received Financing from the World Bank towards the cost of the Dodoma Integrated and Sustainable Transport Development (P176623-DIST) Project and intends to apply part of the proceeds of this Credit to cover eligible payments under the Contract for Consultancy Services for Detailed Design Review, Construction Supervision and Management of Works Contract for Upgrading of Chamwino - Dodoma road section (32km) to Six (6) and Four (4) Lanes Dual Carriageway under Design and Build Contract. The road Improvement is part of the Government strategy to develop its road network to support the cross-border trade within Tanzania.

The Project Development Objective (PDO) is to ensure safe and sustainable inclusive mobility accessibility in Dodoma City and enhance institutional capacity in the urban transport sector in Tanzania.

The Government of Tanzania, through Tanzania National Roads Agency (TANROADS) is now seeking for a qualified Consulting Engineering Firm (the Consultant) to undertake Consultancy Services for Detailed Design Review, Construction Supervision and Management of Works Contract for Upgrading of Chamwino - Dodoma Road section (32km) to Six (6) and Four (4) Lanes Dual Carriageway under Design and Build Contract.

A qualified Consulting Engineering Firm (the Consultant) will be required to undertake Consultancy Services as the Employer's Representative pursuant to these Terms of Reference (ToR). The Shortlisted Firms shall submit their proposals within the period specified in the Letter of Invitation. The successful bidder shall enter into an Agreement for the Assignment with Tanzania National Roads Agency (TANROADS).

2.0 PROJECT DESCRIPTION

The Chamwino - Dodoma road section (32km) is part of Morogoro – Dodoma Trunk Road (T003) which is 260km long located in the Morogoro and Dodoma Regions in the Central part of Tanzania. The Project Road starts from 1.2 km prior to the Junction to Chamwino Ikulu to Dodoma CBD at Kimbinyiko Round about.

The implementation of the project is intended to enhance economic growth by reducing transport costs and travel time as well as stimulating transportation of agricultural products, forestry, mining, and others along the project area of influence. The location of the project is presented in **Figure 1** below.

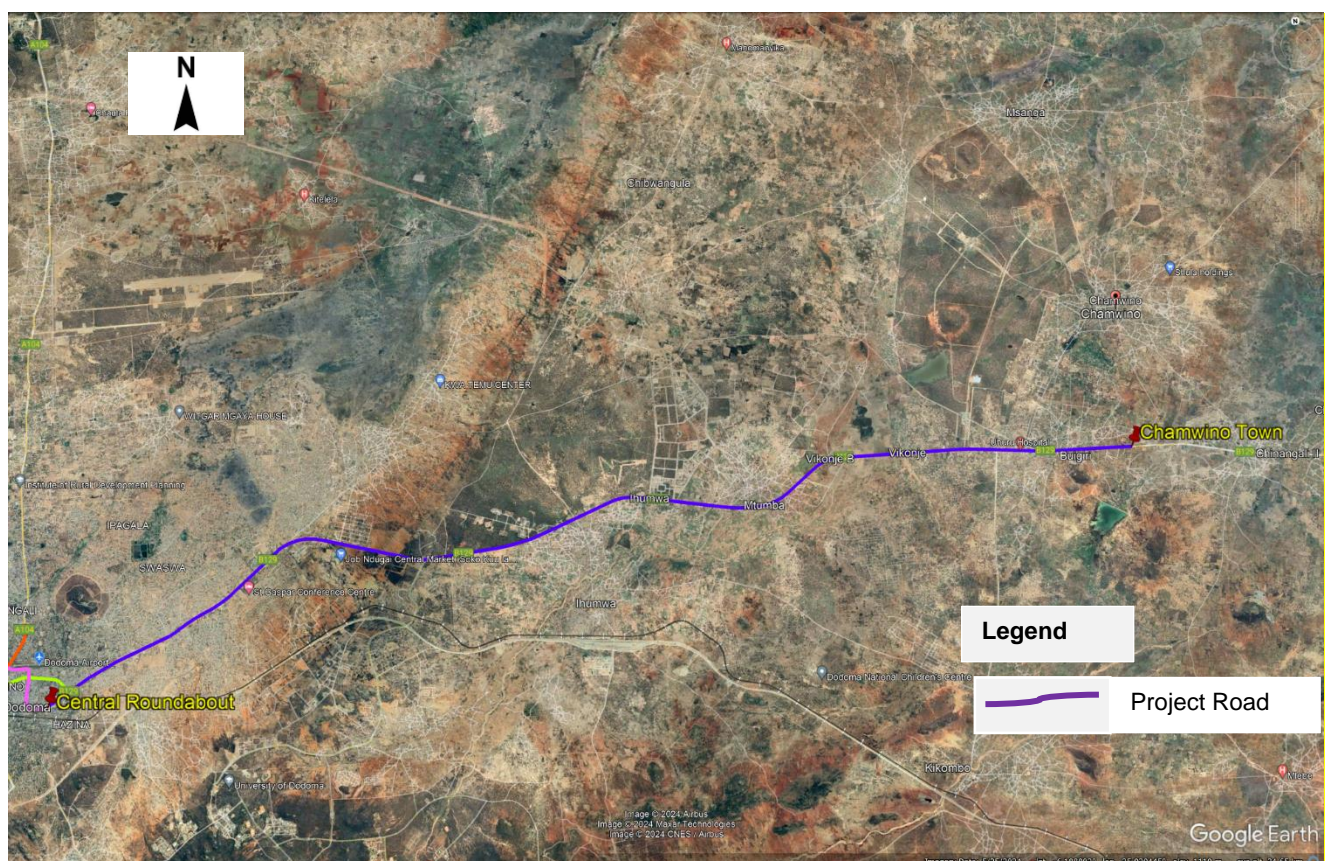


Figure 1: Map of the Chamwino - Dodoma Road Section.

The maintenance operations carried out at the moment on this road are major intervention under Emergency Repair by resealing and overlaying was done at some sections. The existing pavement has severely deteriorated such that the road is inadequate to carry the current and projected future traffic efficiently and effectively due the heavy loads carried. The present condition of the road varies from good to fair.

The baseline design for Chamwino – Dodoma (32km) road section has been re-packaged from the existing Economic Study, Detailed Engineering Design, Environmental & Social

Impact Assessment and Preparation of Tender Documents for Rehabilitation of Morogoro – Dodoma Road Section (260 Km) (Including Mkundi and Kibaigwa Flood Plains) to Bitumen Standard, which was completed in December, 2023 by M/s Beza Consulting Engineering Plc in JV with M/s G-PES Engineering Ltd. The Chamwino – Dodoma section (32km) is part of the Lot 4: Mbande – Dodoma CBD Road Section (260km).

The pavement is designed using the Ministry of Works Pavement and Materials Design Manual 1999 (PMDM) and the South African Mechanistic Pavement Design Method (SAMPDM). The design has resulted into the following pavement structure including improved subgrade layers: -

- Wearing Course 60mm; SP-2
- Binder Course:90mm; SP-2
- Granular Base:200mm: CRR Course type
- Sub base layer:200mm: Cement Stabilized Soil, C1
- Filling, If Required (G3 Topped with 150mm G7,150mm G15)

3.0 OBJECTIVES OF THE ASSIGNMENT

The objective of this assignment is to undertake a Consultancy services for Review of the Design and Build Contractor's detailed design, construction supervision and management of works contract for Upgrading of Chamwino - Dodoma Road section (32km) to Six (6) and Four (4) Lanes Dual Carriageway under Design and Build Contract.

The specific objectives of the Consultancy Services are:

- a) Carry out the review of the detailed engineering design done by the Design and Build Contractor for the purpose of ensuring the correctness, completeness and compliance of the road design with internationally acceptable standards and the latest available National Guidelines. The review of the design component shall involve a thorough scrutiny on at least the following packages:
 - i. Detailed engineering design for the road section under consideration to be submitted by the Design and Build Contractor, including the current and future climate resilience perspectives;
 - ii. DIST Environmental and Social Management Framework, Labour Management Procedures, Stakeholder Engagement Plan, Environmental and Social Commitment Plan, Environmental and Social Impact Assessment (ESIA) for Dodoma-Chamwino - Morogoro Road, and related Environmental and Social Management Plan (ESMP) by taking into account recommendations of the Client and compliance with the National Environmental Management Council (NEMC) Guidelines and applicable World Bank Environmental and Social Standards;
 - iii. Resettlement Action Plan (RAP) being compliant with the NEMC Environmental Guidelines and the Land Acts No. 4 and No. 5 of 1999;
 - iv. Updated Bills of Quantities (BOQ), and
 - v. Collection of all necessary survey data on relevant site and eventually update data and align with the road design, where necessary.
- b) Supervision and Management of the Works Contract during the construction stage to ensure that the work complies with the approved design, drawings, specifications, provisions of contract and sound engineering practice during

construction stage; and project environmental, social, and health and safety (ESHS) requirements. In particular:

- (i) Approval of Design and Build Contractor's detailed designs and working program,
 - (ii) Carry out direct on-site supervision of the construction works.
 - (iii) Preparation of final construction report and as-built drawings of all completed works.
 - (iv) Preparation of the Project completion report.
 - (v) Inspection of completed works during the Defects Notification Period.
- c) Supervision of repair activities as well as implementation of activities included in the snag list.

4.0 CONSULTANT'S RESPONSIBILITIES

4.1. Review of the Detailed Design to be carried out by the design and build Contractor

From time to time, the Consultant shall review the detailed designs submitted by the Design and Build Contractor aiming at identifying areas (if any) that need the Client's attention and advise accordingly while granting approvals. The Consultant shall perform all the required review from the design including review of the bills of quantities and ESIA reports done by the "Separate Consultant" for the construction support facilities such as workers' camp/s, equipment storage yard and workshop/s, gravel extraction/borrow sites, stone quarries, aggregates crusher and batching plant, soil spoil dump areas, etc. In particular the Consultant shall review all the available and relevant documents including climate resilience study conducted recently in Dodoma, ongoing Dodoma transport masterplan study, NMT design report undertaken by TARURA, outcome of Daladala reform studies undergoing with LATRA, maps, drawings, and any other previous studies, if any, and perform the updates to the Detailed Engineering Design, DIST Environmental and Social Management Framework, Labour Management Procedures, Stakeholder Engagement Plan, Environmental and Social Commitment Plan, Environmental and Social Impact Assessment including an Environmental Management Plan, Resettlement Action Plan (RAP) by taking into account recommendations of the Client, IDA and compliance with the National Environmental Management Council (NEMC) Guidelines and the Land Acts No. 4 and No. 5 of 1999 and applicable World Bank Environmental and Social Standards.

The following approved standards by the Ministry of Works and Transport shall be adopted and adhered to during the review of the Design:

- Geometric design:
 - MOW Road Geometry Design Manual of 2011
 - Code of Practice for Geometric Design (Draft) published by SATCC -TU, 1998
 - Global Street Design Guide
 - DAR Urban Street Guideline, 2017
- Pavement and Materials:
 - MOW Pavement and Materials Design Manual, 1999
 - Interim Guideline for the Design of Hot-MIX Asphalt: - MOWTC 2018

- South African Mechanistic Pavement Design Method (SAMPDM) - optional.
- Specifications: ➤ MOW Standard Specifications for Road Works, 2000
- Testing Procedure: ➤ MOW Central Materials Laboratory Testing Manual, 2000
- Structures: ➤ British Standards BS 5400
- Hydrology and hydraulics: ➤ TRRL East African Flood Model / any other internationally recognised model depending on the catchment area
- Traffic Signing and Marking: ➤ A Guide to Traffic Signing (MoID, 2009)
- Traffic Management During Construction : ➤ Traffic Management at Roadworks, TANROADS 2012
- A Guide to Road Safety Audit (MoID, 2009)
- Safety Auditing Manual: ➤ *Road Safety Manuals for Africa: New Roads and Schemes – Road Safety Audit (African Development Bank, 2014)*
- *Road Safety Screening and Appraisal Tool (RSSAT)*
- Surveying: ➤ Land Surveying and Mapping Standards of Tanzania (Land Surveying Regulations CAP 390)
- Economic Evaluation ➤ TANROADS Investment Appraisal Manual 2015 or any other international recognised Investment Appraisal Manual
- Baseline Traffic Counts in Tanzania Mainland & Establishment of a Comprehensive Traffic Census Methodology for TANROADS (ICT, 2009)
- NMT road safety: ➤ Pedestrian Safety. A Road Safety Manual for Decision-Makers and Practitioners (World Health Organization, 2013)
- Road Safety Manuals for Africa: New Roads and Schemes – Road Safety Audit (African Development Bank, 2014) to compliment Safety Audit Manual (MOID, 2009) on road safety assessments
- Road Safety ➤ Safer Roads – A guide to Road Safety Engineering – K W Ogden

The purpose of this review is to ensure that the documents and data to be provided by the Design and Build Contractor are correct, complete, updated, and conform to the internationally acceptable standards, IDA and National guidelines. The Consultant shall in particular also review the following: -

- (i) survey data on site to verify the correctness of the survey data and where necessary correct the survey data and the detailed design accordingly,
- (ii) carry out a thorough study/review of the terrain and traffic at the major centres and

- pavement layers,
- (iii) Drainage structures and their resilience to climate change effects, subsoil drains, erosion checks for drains,
- (iv) Geometrical design including walkways, bus bays and truck lay bay areas along the route and intersections type and design warranted based on, among other factors, the traffic volumes and turning movements at the intersections as provided in the Geometric Design Manual or as per the international good practice,
- (v) Service roads at the major centres for safeguard segregation of traffic, pedestrians, and cyclists,
- (vi) Signs and road markings, kerbs, speed humps / rumble strips / raised pedestrian crossings, guardrails in terms of a crash performance based on the design vehicle and length of needs,
- (vii) Illumination in highway, walkways and service road as per typical cross-section provided,
- (viii) The Consultant is also required to cause the Design and Build Contractor to incorporate in the design, the RSSAT (Road Safety Screening Appraisal Tool) output which will be provided by TANROADS HQ,
- (ix) Updated Bills of Quantities (BOQ),
- (x) Safeguards Compliance in line with WB ESF requirements, including but not limited to DIST Environmental and Social Management Framework, Labour Management Procedures, Stakeholder Engagement Plan, Environmental and Social Commitment Plan, Environmental and Social Impact Assessment including an Environmental and Social Management Plan, Resettlement Action Plan (RAP),
- (xi) Review the available data and climate change projections for the project area with regards to the hydrological and geological conditions to ensure adequacy of proposed drainage systems,
- (xii) Study effects of climate change including effects of increased rainfall, unusual storms leading to flooding, higher temperature due to climate change and assess the vulnerability of road alignment, pavement and cross drainage structures during their design life and propose appropriate resilience adaptation works. The Consultant is required to give consideration to environmental aspects and the climate change aspects in finalizing the design review, Take a note on WB study on Resilience Analysis of Urban Transport Network in Dodoma and Arusha, Tanzania,
- (xiii) Review of the vertical profile in consideration of climate change impacts particularly from the drainage aspects in terms of minimum longitudinal slope, minimum cross- slope, height of embankment, etc,
- (xiv) Verify the hydraulic capacity of existing bridges and drainage structures along the project road, and determine the requirements for the longitudinal drainage system,
- (xv) Review pertinent data and historic and future rainfall information to determine various risk scenarios based on pertinent aspects such as overall risk of failure for drainage structures. Flood Return periods for the design of culverts and bridges will be taken in accordance with the design standards with particular attention to sections prone to flooding or damage during rainy seasons,
- (xvi) Review the catchment area, adopted runoff coefficients based on topography, permeability of soil and vegetation cover,
- (xvii) Review the methodologies used in the design of pavement, earthworks, drainage structures, giving preference to the use of available local construction materials. At all times a balance must be maintained between capital and maintenance costs, and,
- (xviii) Review the analysis performed to compute design discharge, design HFL and various other hydraulic parameters, as appropriately adjusted for climate change i.e. water way, scour depth, free board for bridges, size of roadside drains to guide the runoff to nearby culverts/bridges, etc. given in the detailed design report and compare with the data collected from site investigation and propose appropriate

intervention measures.

Other tasks to be undertaken by the Consultant include the following:

- a) Identify, evaluate, mitigate and allocate risks to be assumed by the Client to increase the certainty of the final fixed price, time and performance to make the project commercially viable;
- b) Develop transparent mechanism that will enable the Client's project team and that of Consultant to track and monitor the quality, quantity, and expenditure within agreed time and budget;
- c) Prepare the supervision plan;
- d) Evaluate site conditions;
- e) Adherence to legislation conditions;
- f) Review and approve Design and Build Contractor's performance;
- g) Set up technical monitoring systems meeting the demand for an efficient construction supervision and administration;
- h) Review and approve the performance programme of the Design and Build Contractor;
- i) Make a plan and schedule for project accounting and cost control system;
- j) Make a plan and schedule for regular site meetings, progress meetings and minutes;
- k) Produce relevant reports and other form of communication for successful completion of the project; and
- l) Ensure that the Design and Build Contractor fulfil requirements and tests as required by relevant legislation and standards prior to commencement of the construction.

4.2 Construction Supervision of Works

The Consultant shall be fully responsible for the Supervision of construction Works. The Consultant shall in general exercise the powers of the Engineer in all matters concerning the Contract and the execution of the Works. He shall supervise the construction works with due diligence and efficiency and in accordance with sound technical, administrative, financial and economic practices. He shall perform all duties associated with such tasks to ensure that only the best construction practices are followed and that the final product is in all respects equal to, or better than that specified, at the most economic costs and is carried out in full compliance with the governing specifications.

In particular, the Consultant's duties and responsibilities shall include but not limited to:

- (i) Locate the camp sites in areas, which minimize disruption to local population, fauna and flora, water courses, provide adequate drainage facilities, treatment of sewage and waste disposals. The camp areas should be dismantled or/and rehabilitated (to at least the condition as received at project start) once the construction project is completed;
- (ii) Receive, analyze and approve the Design and Build Contractor's Work program prior to the commencement of construction activities. The Consultant shall provide appropriate and timely inputs to the program where required to ensure that construction works are implemented using effective, and realistic plans and schedules;
- (iii) Receive and review the contents and amounts of all relevant Insurance Certificates submitted by Design and Build Contractor as required by the Works Contract and advise the Client accordingly;

- (iv) Check and establish that the Design and Build Contractor mobilizes staff and supplies to the contract all plants, equipment and machinery that have been committed under the Works Contract and ensure that all such items of plants, equipment and machinery are calibrated, as required and remain on the construction site until their release has been authorized;
- (v) Receive and verify the registration cards of key equipment and plants mobilized on site by the Design and Build Contractor for execution of Works before submitting the same to the Client;
- (vi) Study/review of Procurement Management Plan, Quality Assurance/Quality Control programs, ESIA/ESMP, RAP and contract documents, and other relevant documents prepared by the Design and Build Contractor and advise the Client of any deficiencies or necessary improvements that are identified or deemed necessary for the successful implementation of the project. All design changes that affect the quality, scope, cost or completion period of the works are subject to prior consultation and approval from the Client;
- (vii) Direct and control activities of the site staff;
- (viii) Develop and supervise a Quality Control System (QCS) for the project implementation to verify the quality of the works;
- (ix) Establish a Contract Administration System to track performance and quality of services, goods and works. At all times take necessary measures and provide appropriate advice to TANROADS to enable the construction contract to be completed in a timely and cost-effective manner, in conformity with the contract conditions and specifications;
- (x) Analyze the effect of cost variations on the execution of the respective work(s), for TANROADS to make decisions on approvals or take the necessary remedial action;
- (xi) Satisfy itself thoroughly of the nature and scope of the works, of all information and documents available, the materials and equipment to be used by the Design and Build Contractor in executing the works as to enable him to perform his duties satisfactorily, study and check all documents associated with the project, foresee possible problems and advise TANROADS appropriately during construction and repair (defect notification) period;
- (xii) Identify and mark all utilities with the help of the responsible authorities and assist TANROADS in effecting the removal/relocation (where necessary) of utilities within the right of way;
- (xiii) Liaise with the respective Regional Authority to ensure that the assessment and compensation of crops and buildings including temporary structures and fences, if any, within the right of way is done before the Design and Build Contractor is given possession of site;
- (xiv) Identify and locate all beacons and benchmarks, confirm their compatibility with the designs, cause Design and Build Contractor to re-establish the missing ones

where needed in accordance with the works requirements and agreed specifications and hand over to the Design and Build Contractor before commencement of the works to enable the Contractor set out and construct the works;

- (xv) Ensure that the Design and Build Contractor has undertaken community consultation prior to commencing any roadworks;
- (xvi) Ensure timely execution of civil works carried out by the Design and Build Contractor as well as proper timing of delivery and installation of any associated fixtures and/or equipment by suppliers.
- (xvii) Review and approve all road safety measures, including road detours/deviations, safety controls and signs, training, and monitoring; and should undertake inspections on adequacy of road safety measures and make recommendations for changes or improvements as needed;
- (xviii) Review the roadworks Traffic Management Plans (TMPs) prepared by the Design and Build Contractor and provide relevant comments (if any) to ensure safety of workers as well as all road-users through the work zone. The Consultant must approve the TMPs and share copies with the Client for its review and record. The Consultant shall also ensure that the Design and Build Contractor follows the TMPs in order to establish safety of all road-users during the roadworks;
- (xix) Undertake Construction-stage (during roadworks) Road Safety Audits (RSAs) at least four (4) times during the construction period. These RSAs shall be conducted randomly, however, mainly during major roadworks. The RSAs must place special emphasis on safety of vulnerable road-users (e.g., pedestrians, cyclists, etc.) through roadwork sites. The Consultant shall notify the Client in advance of conducting the RSAs so that the Client can nominate staff to attend the same. The RSA report shall be prepared by the Consultant and shared with the Client within 10 working days of the completion of the RSA. The Consultant shall organize a meeting with the Client and the Design and Build Contractor to discuss the findings and recommendations of the RSA;
- (xx) Keep updated all records including reports, cash flow forecast for the Project, works diaries, correspondence, instructions given to Design and Build contractor(s), test records, measurement and quantity calculations, payment records and all other relevant documents pertaining to the works operations and supervision contracts;
- (xxi) Prepare consolidated monthly reports on physical and financial status, site meetings, contractual matters, ESHS Compliance, etc., with recommendations for action by TANROADS. The reports shall be submitted in hard and soft copies;
- (xxii) Review and approve Design and Build Contractor/s Environmental and Social Management Plan and associated Environmental and Social Management Strategies and Implementation Plans (MSIP) to manage the (ESHS) risks and monitor their implementation. The MSIP shall include but not limited to:

- a) Traffic Management Plan to ensure safety of local communities from construction traffic;
 - b) Water Resource Protection Plan to prevent contamination of drinking water and manage the extent of usage by the Design and Build Contractor for construction purposes. The plan should also outline the process for effluent and water discharge quality monitoring;
 - c) Provide Chance find procedure that outlines the actions to be taken if previously unknown cultural heritage is encountered;
 - d) Waste Management Plan to provide guides for reducing, handling, and disposing of waste during construction or land-clearing;
 - e) Material source, borrow pit and quarry management plan;
 - f) Boundary Marking and Protection Strategy for mobilization and construction to prevent offsite adverse impacts;
 - g) Strategy for obtaining Consents/Permits prior to the start of relevant works such as opening a quarry or borrow pit;
 - h) Gender based violence, sexual exploitation and abuse, and sexual harassment (GBV/SEA/SH) prevention and response action plan;
 - i) Grievance Redress Mechanism;
 - j) Occupational Health and Safety Management Plan, to ensure health and safety of workers; including use of protective clothing;
 - k) Community Health and Safety Management Plan, including HIV/AIDS and COVID-19 awareness and prevention, including sensitization and counselling; drug and substance abuse, and avoidance of child labour and child abuse.
 - l) Emergency Response and Preparedness Plan;
 - m) Air-quality, Noise pollution and vibration management plan;
 - n) Labour Management Plan;
- (xxiii) Management of Labour Influx and use of local labour, including employer compliance with national laws in relation to terms and conditions of employment, occupational health and safety, and prohibition of forced labour/labour trafficking and avoidance of child labour, in particular worst forms of child labour. In the context of management of labour influx, establish and operate a worker grievance redress mechanism for project workers in line with the project Labour Management Procedures (LMP) and ESS2;
- (xxiv) Direct and monitor the implementation of HIV/AIDS, STI and TB awareness, sensitization campaigns by providing health education to the work force and the local population and provide preventive condoms. For this aspect of the supervision services, the Consultant should include a (i) qualified Public Health Expert/Sociologist as part of the supervision team and (ii) undertake mapping of all activities of the respective services provider(s);
- (xxv) Perform routine and periodic comparison between the works' schedules and the actual progress of works, and cause the Design and Build Contractor to review the program whenever the previous program is inconsistent with the actual works on site or with the Design and Build Contractor's obligations;
- (xxvi) Prepare Project Management control charts (PMCC) of the main activities and a project master schedule, indicating both past performance and forecasts for completion including time involved in each case and report the physical, socio-environmental and financial progress of the Project implementation in accordance

with the principles of Earned Value Management. The PMCC shall be able to establish and manage goals for the Project and comprise:

- a. Definition and authorization of the project scope of work;
- b. Development of a baseline against which cost, schedule and technical performance can be measured;
- c. Objective performance measurement;
- d. Variance analysis and corrective action reporting;

(xxvii) The Earned Value Management shall show:

- a. If the project is ahead of or behind schedule;
- b. If the project is spending money efficiently;
- c. If the money has been spent on the right things;
- d. If the schedule and /or cost performance is improving or deteriorating with time;
- e. The Consultant shall produce as a minimum on a monthly basis the information given in Table No.1 both in a tabular and graphical form.

Table No 1: Earned Value Calculation Worksheet

Earned Value Statistic	Earned Value Description/Formula	Answer
Actual Cost (AC)	How much money has been spent for work that is completed?	
Budget at Completion (BAC)	How much is budgeted for total project?	
Earned Value (EV)	What is the value of the work already performed?	
Planned Value (PV)	What is the value of the work expected to be done?	
Cost Variance (CV)	$EV - AC$	
Schedule Variance (SV)	$EV - PV$	
Cost Performance Index (CPI)	$EV \div AC$	
Schedule Performance Index (SPI)	$EV \div PV$	
Estimate at Completion (EAC)	$BAC \div CPI$ used if no variance has occurred or expect to continue at the same rate as currently; Or $AC + ETC$ used if original estimate was flawed and you developed a new one Or $AC + (BAC - EV)$ used when current variances won't be continued into the future Or $(AC + (BAC - EV)) \div CPI$	
Estimate To Complete (ETC)	$EAC - AC$	
Variance at Completion	$BAC - EAC$	

- (xxviii) Inspect and approve materials delivered to site. As appropriate, instruct the Design and Build Contractor to take samples and carry out tests of materials, components, techniques and workmanship and examine and approve the conduct and results of such tests whether on or off site;
- (xxix) Measure quantities of works satisfactorily carried out and certify monthly and final payment certificates for consideration by TANROADS. Monthly certificates to be submitted to the Client for payment shall include the total cost of the works executed in foreign and local currency;
- (xxx) Record, examine and evaluate all claims submitted by the Design and Build Contractor and submit timely recommendations thereof for consideration by TANROADS. The Consultant's claims report to the Client is expected to include at least the following information:
- (a) Description of the claim;

- (b) Source and reason of the claim;
 - (c) Consultant's opinion on the legitimacy and the scope of the claim; and
 - (d) Consultant's conclusions and recommendations on the claim.
- (xxxi) Determine the unit rates for new items of Works in the contract and submit to TANROADS for approval;
- (xxxii) Once the roadworks for the entire road corridor is on the verge of completion or completed, the consultant, in close collaboration with the Client, shall undertake a pre-opening stage Road Safety Audit (RSA) to identify any road features or deficiencies which may lead to hazardous situation. A RSA report shall be prepared by the consultant and shared with the Client within 5 working days of the completion of the RSA. The consultant shall organize a meeting with the Client and the Design and Build Contractor to discuss the findings and recommendations of the RSA. The consultant shall also be responsible to ensure compliance of RSA recommendations by the Design and Build contractor;
- (xxxiii) The Consultant may, with prior consultation with TANROADS effect changes that will improve design or specification for the works. Such changes shall not increase the contract time nor shall the increase in contract sum resulting from such changes exceed a percentage to be agreed with TANROADS;
- (xxxiv) The Consultant shall prepare a Supervision Manual which will lay out procedures to be followed during the execution of the works. The Manual will also serve as a basis for on-the-job training of TANROADS staff if any or any visiting students during the implementation of the works contract;
- (xxxv) Maintain a site diary on a daily basis with the contents and format to be agreed with TANROADS;
- (xxxvi) Organizing and undertaking on the job training for qualified counterpart engineers. The engineers will be seconded to the Consultant by Client during the execution of the works contract. The training will include apart from others, all aspects of supervision of road works contracts, contract works scheduling, quality control of completed works, setting out and measurement, including preparation of as-built drawings and final report;
- (xxxvii) Provide appropriate instructions to Design and Build Contractor in order to protect, store or secure a part of the completed or on-going works against any serious deterioration, loss or damage;
- (xxxviii) When the implementation of the civil works contract reaches a value of 80% of the initial construction contract, the Consultant shall prepare and submit a detailed progress report with updated cost of the civil works contract, implementation schedules and substantiate any request related to additional funding, as such, needed to full completion of the project;
- (xxxix) Prepare and submit to the Client the Final Report at Substantial Completion and Final Completion Reports at the end of the defect's notification period; Prepare and submit to TANROADS the final account of executed works;

- (xl) Review and approve the as-built drawings prepared by the Design and Build Contractor;
- (xli) The Consultant shall provide any other additional services if so requested by the Client, at rates and under conditions to be mutually agreed which fall within general ambit of these Terms of Reference;
- (xlii) The Consultant shall ensure that the Design and Build Contractor's (Environmental, Social, and Health and Safety - ESHS) ESHS performance is in accordance with TANROADS Environmental, Social, and Health and Safety (ESHS) Code of Conduct (accessible through <https://www.tanroads.go.tz/policies>), Design and Build Contractor's ESHS obligations, project ESIA/ESMP, ESMF, LMP, SEP, ESCP, EHSGs, and good international industry practice. The ESHS related services include but are not limited to: -
 - a) As part of the engineering design review, undertake review and incorporation into the engineering designs, the environmental, social, health and safety aspects and mitigation measures identified in the ESIA report and any emerging/ new E&S aspects before approval;
 - b) Review CVs of and recommend for approval the proposed personnel for Environmental and Social Safeguards staff, ensuring they meet the minimum requirements in terms of qualification and experience as shall be specified in the hiring TORs;
 - c) Review and approve the Design and Build Contractor's Environment and Social Management Plan (C-ESMP) prior to any construction works, including all updates and revisions (within a reasonable time usually not exceeding 6 calendar months and prior to any construction works that would be covered by the proposed material changes) in consultation with the Environmental, HS or Social specialists of TANROADS;
 - d) Monitor the implementation of the Design and Build Contractor's ESHS requirements, including impact mitigation and monitoring measures, during the construction of the works;
 - e) Review and approve ESHS provisions of method statements, risk assessment, implementation plans, GBV/SEA prevention and response action plan, drawings, proposals, schedules and all relevant Design and Build Contractor's documents;
 - f) Review and consider the potential ESHS risks and impacts of any proposed design change proposals and advise if there are implications for compliance with ESIA, C-ESMP, consent/permits and other relevant project requirements;
 - g) Undertake quarterly ESHS audits, daily supervisions and/or inspections of any sites where the Design and Build Contractor is undertaking activities related to the Works, to verify the Design and Build Contractor's compliance with ESHS requirements including its Gender Based Violence (GBV)/ Sexual Exploitation and Abuse (SEA) obligations, with and without Design and Build contractor and/or client relevant representatives, as necessary, but for GBV related issues not less than once per month;

- h) Review the Design and Build Contractor's EHS workers training and related materials and activities related to workers who predominate language is Swahili;
- i) Carry out quarterly "thematic" Environmental and Social Safeguards refresher training of key project staff (E&S staff, Section heads), and conduct daily ESHS tool box meetings/drills at active work fronts;
- j) Develop and maintain ESHS checklists and supervision reports related to audits and inspections related to Design and Build Contractor's ESHS compliance and performance;
- k) Routinely review and undertake audits and inspections of Design and Build Contractor's worker EHS training records, accident logs, community liaison records, EHS inspection and monitoring findings and other ESHS related documentation, as necessary, to confirm the Design and Build Contractor's compliance with ESHS requirements;
- l) Promptly report any identified non-compliance issues to Construction Design and Build Contractor and TANROADS and work with these entities to define acceptable remedial action/s and their timeframe for implementation in the event of a noncompliance with the Design and Build Contractor's ESHS obligations remedial action/s and their timeframe for implementation in the event of a noncompliance with the Design and Build Contractor's ESHS obligations;
- m) Establish and maintain an E&S Compliance Tracker, indicating summary of E&S corrective instructions issued to the Design and Build Contractor/s and status of implementation of required corrective measures;
- n) In the case of any significant or material ESHS incident (such as death or seriously accident, significant spill, pandemics like COVID 19 etc.), report within one day of knowledge of such event to TANROADS and work to define acceptable remedial actions to investigate, remediate and prevent such events in the future (see Section 6.1 for related reporting);
- o) Supervise and lead the conduct of incidents/accidents investigations (root-cause-analysis), development of Safeguards Corrective Actions Plans, and monitoring of their implementation;
- p) Undertake environmental and social due diligence of all proposed sites for acquisition/procurement of construction materials before granting approval for supply of materials from such sites; and thereafter undertake quarterly compliance checks of their operations;
- q) Undertake supervision of Environmental and Social screening of proposed sites and/or conduct of ESIA/ESMP studies by the Design and Build Contractor (through "Separate ESAI Consultants") for support facilities (suitable/qualified) such as workers' camp/s, equipment storage yard and workshop/s, gravel extraction/borrow sites, stone quarries, crusher plant for stone aggregates and batching plant, soil-spoil dump areas, including acquisition of the required Statutory Permits/ Licenses, before establishment of such facilities, in accordance with the National Environmental and Social requirements, World Bank Environmental Health and Safety Guidelines for Extraction of Construction Materials, the project ESMF, ESCP, and

applicable WB Environmental and Social Standards;

- r) In relation to all significant material and service providers to the Design and Build Contractor (such as sites/providers of road base and fill materials, construction waste disposal services and sites), undertake site visit and assessment of such material and service providers in terms of potential significant ESHS issues;
 - s) Ensure appropriate representation at relevant meetings including site meetings, and progress meetings to discuss and agree appropriate actions to ensure compliance with ESHS obligations;
 - t) Review and critique, in a timely manner, the Design and Build Contractor's ESHS documentation (including regular reports and incident reports) regarding the accuracy and efficacy of the documentation;
 - u) Undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ESHS issues;
 - v) On behalf of TANROADS, establish and maintain a grievance redress mechanism with support of the Design and Build Contractor, including types of grievances to be recorded and how to protect confidentiality e.g., of those reporting allegations of GBV/SEA. Also, on behalf of TANROADS, ensure and maintain a worker grievance redressal mechanism in line with the project Labor Management Procedures (LMP) and ESS2;
 - w) Ensure any GBV/SEA instances and complaints that come to the attention of the Consultant are registered in the grievance redress mechanism respecting the confidentiality of the parts;
 - x) Reviewing and considering the potential health and safety risks and impacts of any proposed design change proposals and advising if there are implications for compliance with National and WB ESHS requirements, consent/permits, and other relevant project requirements.
 - y) Prepare and submit to TANROADS, as part of monthly progress report, issues on ESHS project construction compliance and performance (see Section 6 for details);
 - z) Upon completion of project construction or closure of any specific work area or camp site, perform an inspection of such site/area and carry out E&S Audit to ensure Design and Build Contractor's compliance with ESHS requirements and whether there are any existing unmitigated ESHS impacts, and if issues are identified then promptly notify the Design and Build Contractor and TANROADS and work with such entities to define acceptable remedial actions to resolve all issues before handover of such sites and/or processing the final payment certificate during the construction phase. .
- (xlili) After completion of the works the Consultant shall inspect the works periodically and assist TANROADS in administrative matters related to the Works Contract. The tasks shall include:
- (a) Prepare a list of any defects noticed and supervise the rectification of the same during the Defects Notification

- Period. Perform regular inspection of the Design and Build Contractor's remedy of defects;
- (b) Develop Operations & Maintenance Environmental and Social Management Plan (O&M-ESMP) for completed sites, transitioning to operations phase;
- (c) Issue of the Performance Certificate and verify the Design and Build Contractor's Final Statement;
- (d) Prepare and issue the Final Payment Certificate;
- (e) Recommend the return of Performance Guarantee and Retention Money.

4.3 Defects Notification Period

The Consultant shall supervise maintenance of the works (including the administrative aspects of the works) during the defects notification period. For purposes of fulfilling the Consultant's obligations during the Defects Notification Period, the Resident Engineer is expected to carry out inspection of the works and subsequently prepare and issue the final certificate. During this period, the Consultant shall be expected to draw the attention of the Design and Build Contractor to any defects as soon as such defects are noticed and shall supervise the subsequent remedial works. As the Defects Notification Period for the contract is 18 months, a total of six (6) inspections will be carried out at an interval of 3 months' time intervals (each inspection visit shall be extended for a period of seven (7) calendar-days consecutively) after completion of the total works and any deficiencies noted along the road will be communicated to the Design and Build Contractor and its remedial measures proposed to the Design and Build Contractor for implementation. Depending on the nature of the deficiency, repair work will be carried out under the Consultant's supervision. The Consultant will be required to submit the inspection report to the Employer. At the end of the 36-month defect notification period, the Consultant will do an inspection and confirm that the Design and Build Contractor has completed Works ready for joint inspection and handover. A final inspection will be carried out under the supervision of the Project Manager/Resident Engineer who will prepare and sign the Inspection Report and distribute it to the Design and Build Contractor, TANROADS HQ and Regional Manager Dodoma Region for joint verification.

4.4 Training

The Consultant shall organize and undertake theoretical and on-the-job training for a maximum of three engineers and two E&S experts. These staff will be seconded to the Consultant by TANROADS during the execution of the works contract. The training will include, among others, all aspects of supervision of road works contracts; construction works scheduling, quality control of works, setting out and measurement, preparation of as-built drawings and final report including those specified in the project ESCP, listed below:

- Health Safety Management Plan;
- Emergency Response Plans;
- Road Safety;
- Root Cause Analysis;
- Construction site induction training;
- Code of Conduct for Workers;
- OHS risk assessment;
- GBV/SEA/SH awareness, prevention, and response;
- Labor and working conditions, including employer compliance with national labor laws, and combatting of child labor and forced/trafficked labor;
- Specific training for specific OHS risks; and
- Functioning of the grievance mechanisms.

5.0 CONSULTANT'S PERSONNEL

5.1 Key Staff

The Professional staff to be provided by the Consultant is estimated at **318 person-months** covered by the services of: Project Resident Engineer, Soils/Materials Engineer, Highway Engineer, Urban Roads Engineer (experience in urban roads and walking/ cycling facilities design and construction), Traffic Engineer, Topographical Surveyor, Bridge/Drainage Engineer, Environmentalist, Sociologist, Health and Safety Officer, and Road Safety Engineer. The Consultant shall provide the above-mentioned key professional staff with academic and professional qualifications and experience to recognize and to deliver good international industry practice with respect to supervision of Civil Works, Environment, Social Sexual Exploitation and Abuse (SEA) and Gender-Based Violence (GBV) requirements in order to fulfill the objectives of the services and for which he/she will receive remuneration as specified in the Contract Document.

The Consultant shall employ only such Key Staff whose CVs have been approved by the Client. In addition to the expert personnel, the Consultant shall determine the support staff to assist with on-site supervision of the works.

The Consultant must provide in the proposal CVs and copies of the highest education certificates for all professional and technical staff including the duration in man-months during which the staff will be deployed under the contract.

The Key Professional Staff input (stage 1 and 2) and support staffs input to be provided by the Consultant is estimated at 318 and 245 person months respectively. The desirable inputs of key staff are provided as follows:

Stage	Estimated Staff months for Key Staff for Review of the Design, Construction Supervision and Management of Works Contract for Upgrading of Chamwino - Dodoma road section (32km) to Six (6) and Four (4) Lanes Dual Carriageway under Design and Build Contract.	
1	During the Design Review and Construction Supervision	
	Key Position	Staff Month
1	Resident Engineer	36
2	Highway Engineer	34
3	Urban Roads Engineer	20
4	Traffic Engineer	20
5	Soils/Materials Engineer	34
6	Bridge/Drainage Engineer	10
7	Topographical Surveyor	34
8	Environmentalist	36
9	Sociologist	36
10	Health and Safety Officer	36
11	Road Safety Engineer	34
	Sub-Total 1	310
2	During Defects Notification Period	

	Key Position	Staff Month
	Resident Engineer	2
	Road Safety Engineer	2
	Environmentalist	1
	Sociologist	1
	Health and Safety Officer	1
	Road Safety Engineer	1
	Sub-Total 2	8
	TOTAL	318

5.2 Back up Staff

Project Director: The Project Director shall provide the overall direction of the project, coordinate design review, guide and support the site supervision staff and liaise with the Client for the duration of the project. He shall be based at the Consultant's head office and shall co-ordinate any specialist services that may be required from the Consultant.

5.3 Staff Qualifications and Requirements

5.3.1 Resident Engineer (K-1):

The Resident Engineer shall head the site staff and shall be responsible for proper conduct of the entire design review and for all technical and administrative aspects on site.

She/he must be a registered Civil Engineer or Chartered Engineer with a degree in Civil or Highway Engineering. Postgraduate qualifications in Civil or Highway Engineering and knowledge is an added advantage.

She/he must have a minimum of twelve (12) years of specific experience related to roads design and construction supervision. She/he should be experience in contract administration under FIDIC Conditions of Contract. Knowledge/experience of assessing climate change impacts and consequent required engineering adaptations are an added advantage. She/he must have served as a Resident Engineer or in an equivalent capacity on at least one (1) bituminous road construction project (design and built) of similar magnitude and complexity in the last 10 years.

In addition, he/she must have a working experience of at least 3 years in developing countries and shall be proficient in written and spoken English.

5.3.2 Highway Engineer (K-2):

The Highway Engineer shall be responsible for review of the Design and Build Contractor's design on the geometrical and pavement aspects of the road and provide assistance to the ESIA/RAP team during undertaking of valuation of properties to be affected by the project. The Highway Engineer's duties shall comprise supervision of road surveys, construction of pavement structures, measurement of quantities and management of site operations.

She/he must be a registered Civil Engineer with a degree in Civil Engineering or Highway Engineering. A postgraduate qualification in Highway Engineering Engineering and knowledge

and experience of assessing climate change impacts and consequent required engineering adaptations are an added advantage.

She/he must have a minimum of ten (10) years of specific experience related to roads design and construction. She/he must have served in a similar capacity on at least one (1) project for construction of bituminous roads (design and built) of similar magnitude and complexity in the last 10 years.

In addition, he/she must have a working experience of at least 3 years in developing countries and shall be proficient in written and spoken English.

5.3.3 Urban Roads Engineer (K-3)

The Urban Roads Engineer shall be responsible for the review of the Design and Build Contractor's design on urban roads design aspects to adequately and safely accommodate for all transport users including but not limited to pedestrians, cyclists, public transport users, freight, and motorists. The Urban Roads Engineer will ensure that the detailed design considers mobility, accessibility, and inclusive (universal access, gender, etc.) requirements for all users, and adequate alignment with land-use requirements.

She/he must be a registered Civil Engineer with a degree in Civil Engineering. A postgraduate qualification in transport planning, transport engineering, civil engineering, or relevant field. She/he must have a minimum of 10 years in planning and design of urban roads, preferably in developing countries. Experience in Urban Road Corridor Management projects in developing countries (at least 2 countries) and shall be proficient in written and spoken English.

5.3.4 Traffic Engineer (K-4)

The Traffic Engineer shall be responsible for the review of the Design and Build Contractor's detailed design to ensure proposed improvements adequately respond to the demand of all users to an acceptable level of service and ensure the safety of all transport users.

She/he must be a registered Civil Engineer with a degree in Civil Engineering. A postgraduate qualification in transport/ traffic engineering, civil engineering, or relevant field.

She/he must have at least 10 years of experience in the planning and analysis of traffic operations and management measures including transport corridor improvements, Intersection treatment analysis, junction layout analysis and design, traffic signal designs including traffic signals, Area Traffic Control and ITS, junction channelization, bus priority lane design and bus stop and depot layout designs. Proven experience and familiarity with traffic management challenges in Developing Countries (at least 2 countries) is required.

5.3.5 Soils/Materials Engineer (K-5):

The Soils/Materials Engineer shall be responsible for review of quality of construction materials and the investigation of the materials in order to achieve optimal design and construction strategy. The Soils/Materials Engineer shall review the pavement design in consultation with the Highway Engineer and advise the Resident Engineer on the suitability of the same. He/she should be conversant with current practice in testing and pavement construction techniques. The Soils/Materials Engineer shall also be responsible for ensuring the quality of all materials to be incorporated in the works, as well as the completed works, conform to the contract specifications.

She/he must be a registered Civil Engineer with a degree in Civil Engineering or Soils/Materials Engineering. Postgraduate qualification in Soils/Materials Engineering is an added advantage.

She/he must have a minimum of ten (10) years of specific experience in Soils/Materials matters related to road works. She/he must have served in similar capacity in at least two (2) road projects of similar magnitude and complexity in the last 10 years.

In addition, he/she must have a working experience of at least 3 years in in developing countries and must be proficient in written and spoken English.

5.3.6 Bridge/Drainage Engineer (K-6)

The Bridge/Drainage Engineer shall be responsible for review of assessment made on existing bridges and the design of new bridges and other structures along the project road. He/she shall also be responsible for ensuring the bridges and other drainage structures are constructed according to design and conform to the contract specifications.

She/he must be a registered Civil Engineer with a degree in Civil Engineering or Bridge Engineering or Structural Engineering. Postgraduate qualification in Bridge/Structural Engineering is an added advantage.

She/he must have a minimum of ten (10) years of specific experience in bridge/structural design and construction. She/he must have served as a Bridge/Drainage Engineer in at least two (2) road/bridge projects of similar magnitude and complexity in the last 10 years and She/he should have at least 10 years' experience/knowledge of the adjustment required in hydraulic design resulting from climate change within a structure's design life.

In addition, he/she must have a working experience of at least 3 years in years in developing countries and shall be proficient in written and spoken English.

5.3.7 Topographical Surveyor (K-7):

The Topographical Surveyor shall be responsible for conducting and supervising the survey team. He/she will be responsible for planning the fieldwork, selecting known survey reference points, and determining the precise location of important features in the survey area. He/she shall be responsible for searching legal records, looking for evidence of previous references' survey points (geodetic reference points and national benchmarks) and analyzing the data to determine the location of boundary lines and record the results of the survey, verifying the accuracy of data, and preparing plans, maps, and reports. He/She shall mark all properties to be affected by the proposed road to facilitate valuation for compensation.

The Topographical Surveyor shall be a registered Land Surveyor with a respective Professional Body, holding a minimum of Advanced Diploma in Land Surveying.

She/he must have ten (10) years of cumulative experience in road design and construction. She/he must have served as a Topographical Surveyor on at least two (2) projects of similar magnitude and complexity within the last 10 years.

In addition, he/she must have a working experience of at least 3 years in in developing countries and shall be proficient in written and spoken English.

5.3.8 Road Safety Engineer (K-8)

The Road Safety Engineer shall be responsible for the proper adherence of road safety aspects for the entire design. He/she shall be responsible for oversight of road safety data collection, analysis, road safety audit and recommendation and implementation of road safety improvement measures. The Road Safety Engineer shall also be responsible for monitoring of day-to-day implementation of road safety issues under the project and ensure compliance by the Design and Build Contractor with all road safety issues and plan. He/she shall be responsible for conducting Road Safety Audit for the Project during construction and post construction stages and prepare reports.

She/he must be a registered Civil Engineer with a degree in Civil Engineering or Road Safety Engineering. Postgraduate qualification in Road Safety Engineering is an added advantage.

She/he must have a minimum of ten (10) years of specific experience in Road Safety Audits/design and construction.

She/he must have served as a Road Safety Engineer in at least two (2) road projects of similar magnitude and complexity in the last 10 years.

In addition, he/she must have a working experience of at least 3 years in years in developing countries and shall be proficient in written and spoken English.

5.3.9 Environmental Officer (K-9)

The Environmental Officer shall be responsible for reviewing ESIA and monitoring of day to day implementation of the MSIP and Design and Build Contractor's ESMP. She/he must have sound knowledge of environmental issues, initiatives and implementation of mitigation measures related to civil engineering infrastructure projects.

She/he must be a registered Environmentalist with a degree in Environmental Management Studies, Environmental Science or Environmental Engineering. A Post graduate qualification in Environmental studies is an added advantage.

She/he must have served as an Environmental Officer on at least two (2) projects of similar magnitude and complexity within the last ten (10) years.

She/he must have a working experience of at least five years, including three (3) years in developing countries, and shall be proficient in written and spoken English.

5.3.10 Sociologist (K-10)

The Sociologist shall be responsible for review of RAP and supervision of implementation of the project as per environmental and social laws, regulations, policies and guidelines; monitoring of the social issues in the project in order to minimize any negative impacts from the project to the people in the project area; in particular women, persons with disabilities and other members of vulnerable groups; and monitor implementation of the Resettlement Action Plans (RAP) to address the resettlement impacts during project implementation, as well as monitor the implementation of the Stakeholder Engagement Plan (SEP), LMP, GBV/SEA/SH Action Plan, and other ESF instruments for the project.

The Sociologist must be a holder of Degree in Sociology, Social work, or Community Development. A Post graduate qualification in related disciplines is an added advantage.

She/he must have sound knowledge of social issues, initiatives and implementation of mitigation measures related to civil engineering infrastructure projects. She/he must have served as Sociologist in at least two (2) projects of similar magnitude and complexity. She/he should have knowledge of GBV, SEA, stakeholder engagement, and labor management, including labor influx issues in relation to linear infrastructure projects. She/he must have experience in undertaking social impact assessment

She/he must have a working experience of at least three (3) years in developing countries and shall be proficient in written and spoken English.

5.3.11 Health and Safety Officer (K-11)

The Health and Safety Officer shall be responsible for monitoring of day to day implementation of the environmental health and safety (EHS) issues under the project and ensure compliance by the Design and Build Contractor with all EHS Plans in order to help avoid, minimize, mitigate and remediate if necessary any negative related to EHS impacts and risks around the project. He/She must have experience in management of Health and Safety issues in accordance with the requirements of Occupational Health and Safety Authority (OSHA) or international recognized institution for the same

She/he must be a registered with OSHA for practicing the Health and Safety Mitigation measures in work place and must be a holder of Degree or Advanced Diploma in Health Science, construction safety management. A Post graduate qualification in Health and Safety related disciplines is an added advantage.

She/he must possess at least five (5) years of cumulative experiences in monitoring of Health and Safety issues in work place, initiatives and implementation of mitigation measures related to roads/airports infrastructure projects.

She/he must have served as Health and Safety Officer in at least two (2) projects of similar magnitude and complexity within the last ten (10) years. She/he must have at least 3 years working experience in developing countries and must be proficient in written and spoken English.

5.4 Support Staff:

Project Director – The Project Director shall guide and support the site supervision staff for the duration of the project. He shall be based at the Consultant's head office and shall co-ordinate any specialist services that may be required from the Consultant.

In addition to the key personnel designated above, the Consultant shall provide the support and back-up staff to assist with on-site supervision of the works in the following categories:

- i. Works Inspector – Road works (1 No.);
- ii. Works Inspector – Drainage and Structures (1 No.);
- iii. Materials Technicians (1 No.);
- iv. Assistant Surveyor (1 No.);
- v. CAD Technician (1 No.);
- vi. Traffic Engineer (1 No.);
- vii. Geotechnical Engineer;

- viii. Contract Management Expert (1 No.); and
- ix. Office Secretary (1 No.).

Note: CVs for Support Staff will not be evaluated.

The support staff input to be provided by the Consultant is estimated at **245** person-months with the desirable inputs of support staff are provided as follows:

Stage	Estimated Staff months for Support Staff for Review of the Design, Construction Supervision and Management of Works Contract for Upgrading of Chamwino - Dodoma road section (32km) to Six (6) and Four (4) Lanes Dual Carriageway under Design and Build Contract.	
1	During the Design Review and Construction Supervision	
	Support Staff Position	Staff Month
1	Project Director	18
2	Geotechnical Engineer	5
3	Contract Management Expert	10
4	Road Inspectors	36
5	Bridge/Drainage Inspectors	36
6	Traffic Engineer	10
7	Materials Technician	36
8	Assistant Surveyor	36
9	CAD Technician	18
10	Secretary	36
	Sub-Total 1	241
2	During Defects Notification Period	
	Key Position	Staff Month
	Road Inspector	2
	Materials Technician	2
	Sub-Total 2	6
	TOTAL	245

5.5 Staff Requirement during Defects Notification Period

The Consultant shall assemble a team led by the Resident Engineer to conduct the inspection during the defects notification period as described in paragraph 4.3.

5.6 The Consultant's Staff

The Consultant's staff shall:

- (a) Be available to move to the Works site upon the commencement of the contract; and
- (b) Accord officials from TANROADS and the Ministry of Works the opportunity to inspect the works and the related documentation.

6.0 DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

TANROADS will provide liaison with the Government Ministries and Agencies to introduce the Consultant to them. However, the Consultant shall be fully responsible for collecting data and information from various departments/agencies;

6.1 The Client will make available to the Consultant the following:

- (a) Study reports, including appendices, etc. relevant to the assignment, that have been carried out by or for the Client and any other relevant data available, which are necessary for the proper execution of the supervision of construction works;
- (b) Fully furnished and equipped office space on site for the members of the supervision team, including maintenance, water, electricity, office supplies and consumables;
- (c) Seven (7) vehicles: 1Nos. Brand New Diesel Powered 4WD Station Wagons (engine capacity 2800cc) for the Resident Engineer,. 6 Nos. Brand New Diesel Powered 4WD Double Cabin Pickups (engine capacity 2800cc) to be used by the Consultants staff;
- (d) Accommodation: 2Nos. Type I house; 1 for the Employer's Staff and 1 for the Resident Engineer; 4Nos. Type II House and 3Nos. Multiple Accommodation, Wash House, Office Accommodation and Materials Testing Laboratory;
- (e) Materials Testing and Surveying Equipment;
- (f) Airtime for six (6) Mobile Phones for the Consultant Staff;

6.2 The Client will assist the Consultant to:

- (a) Obtain formal consent from independent authorities or persons having rights or powers in connection with the works or the site thereof;
- (b) Obtain ministerial orders, sanctions, licenses and permits in connection with the works;
- (c) Register a non-Tanzanian firm and key staff with the Engineers Registration Board or equivalent professional bodies. Any associated cost will be borne by the Consultant.

6.3 The Consultant's Responsibilities/Obligations

The Consultant inputs are enumerated as follows:

- (a) The Consultant shall ensure that his supervision staffs provide organized training and instructions to counterpart personnel assigned to the Project, monitors their performance and submits a quarterly progress report on each individual. Training program and reporting should be defined in the Consultants proposal and agreed with TANROADS during pre-contract discussion.

- (b) The Consultant shall ensure that all professional EHS and one Social Specialist providing services under this Supervision Contract have background training related to potential worker health and safety risks associated with this work, and provided all the necessary health and safety equipment, including applicable personnel protective equipment, to fulfill their duties. The Consultant shall also ensure that all non-ESHS personnel providing services under this Supervision contract are provided basic training relate to the Project ESHS requirements and potential significant ESHS related impacts and risks.
- (c) In the conduct of this work, the Consultant shall cooperate fully with relevant Government Ministries and Departments. The Client will provide the Consultant with data and services outlined above. The Consultant shall be solely responsible, however, for the analysis and interpretation of all data received and for the conclusions and recommendations based thereon.
- (d) The consultant shall comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Experts and any other person.
- (e) The Consultant shall be responsible for arranging for his support staff who will not be accommodated in the multiple accommodations provided under the works contract.
- (f) The Consultant shall employ only such key professional staff whose CV's have been approved by the Client. Replacement or temporary substitution shall not be permitted unless in emergency cases or under very exceptional unnatural circumstances;
- (g) The Consultant shall arrange and provide supervision schedule and monitor the efficient performance of staff under his jurisdiction;

7.0 REPORTING

The required reports shall be submitted two (2) copies to TANROADS Headquarters, and one (1) copy will be sent direct to the TANROADS Regional Manager's Office – Dodoma Region both in hard copies (i.e. full color prints and perfect binding type) together with soft copy through Electronics Documents Management System (EDMS) and MS Word/Excel saved in USB Flash; the design drawings shall be in DXF or DWG formats. All reports and documents relevant to the services, including maps, field survey notes, computer programs, shall become the property of Client.

7.1 Inception Report

This report shall include the results of study/review of the design and contract documents, any modification or improvements deemed necessary, results of the review of the Design and Build Contractor's work program, any modifications thereto, status of the consultant and Design and Build Contractor's mobilization, ESHS Design and Build Contractor requirements or other ESHS plans or documents and any other matter requiring the Client's action. This report shall be submitted in two (2) copies to TANROADS within 30 days after commencement of the works contract. One copy will be sent to TANROADS Regional Manager's Office, Dodoma. The Client shall review and provide comments on the Inception Report within a period of ten (10) working days for the purpose of enabling the Consultant to proceed smoothly with the next step of undertaking the assignment.

7.2 ESHS Reports

- (a) The Consultant shall provide immediate notification to the Client should any incident in the following categories occur while carrying out the Services. Full details of such incidents shall be provided to the Client within three (3) calendar days;
 - (i) Immediately notify the Client of any failure by the Design and Build Contractor to comply with its SEA and SH obligations;
 - (ii) Immediately notify the Client of any allegation, incident or accident, which has or is likely to have a significant adverse effect on the environment, the affected communities, the public, Client's Personnel, Design and Build Contractor's Personnel or Experts. In case of SEA and/or SH, while maintaining confidentiality as appropriate, the type of allegation (sexual exploitation, sexual abuse, or sexual harassment), gender and age of the person who experienced the alleged incident should be included in the information. The Consultant shall provide full details of such incidents or accidents to the Client within the timeframe agreed with the Client;
 - (iii) confirmed or likely violation of any law or international agreement;
 - (iv) any fatality or serious (lost time) injury;
 - (v) significant adverse effects or damage to private property (e.g., vehicle accident); or
 - (vi) 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 Design and Build contractor immediate notifications on ESHS aspects are shared with the Client immediately;
- (c) Immediately inform and share with the Client any immediate notification related to ESHS incidents provided to the Consultant by the Design and Build Contractor, and as required of the Design and Build Contractor as part of the Progress Reporting; and
- (d) Share with the Client in a timely manner the Design and Build Contractor's ESHS performance and metrics, as required of the Design and Build Contractor as part of the Monthly Progress Reports.

7.3 Progress Report

- (a) The Consultant shall prepare progress reports every month for the duration of the contract and up to and including one month after substantial completion. These are to be submitted and should reach TANROADS not later than 15 days after the end of the month being reported. One copy will be sent to TANROADS Regional Managers Offices in Dodoma.
- (b) The format and the content of the monthly progress reports shall be as agreed with TANROADS. They will include but not limited to the following:
 - Useful information regarding the implementation of the project allowing a technical and financial follow up of the project;
 - Mention of any changes on the original envisaged technical solutions;
 - Major changes of quantities compared to contractual Bill of quantities;

- suggestions for resolving any technical and other problems which occur and those affecting the progress of the works; (a separate section will be given to cover issues, problems and solutions),
- Financial status of both construction and Supervision of the Works;
- Progress charts including percentages of completion of individual main work items and overall project;
- Weather information and charts, and
- Construction and supervision data
- Summary progress of the works, both physical and financial status;
- Record of working units (number of equipment and labour) used for the various types of works and total number of working hours of every item of equipment and labour category;
- Details of claims if any, made by the respective Design and Build Contractor.
- Design and Build Contractor's ESHS performance, any non-compliance issues and relevant remedial actions taken or being taken.

7.4 Road safety Audit Report

Prepare detailed design-stage PCRSA report and compliance report
 4 x RSA reports during construction and compliance report (as mentioned below)
 Pre-opening-stage RSA report and compliance report and

The Consultant shall undertake a total of four (4) Road Safety Audits spread equally over the duration of the construction phase of the Project. Another Road Safety Audit shall be undertaken 6 months after Substantial completion of the Project. The Consultant shall prepare Report each time he would undertake Road safety Audit. These are to be submitted and should reach TANROADS not later than 15 days after the end of each Road safety Audit. One copy will be sent to TANROADS Regional Managers Offices in Dodoma. four copies to TANROADS HQ.

In addition to the RSA of the Works, as part of the review of the Detail Design Drawings, the Consultant shall undertake a Road Safety Audit of the Detailed Design Drawings ensuring safety of all transport user groups including and not limited to pedestrians, cyclists, public transport users, and motorists.

7.5 Detailed Progress Report

When the implementation of the Civil Works Contract reaches a value of 80% of the initial construction cost, the Consultant shall prepare and submit a detailed progress report with the updated cost of the Civil Works Contract, implementation schedules and substantiate any request related to additional funding, needed for full completion of the Project. The report in two (2) hard copies and an electronic copy shall be submitted to TANROADS Headquarters and one copy will be sent to TANROADS Regional Manager's office at Dodoma.

7.6 Report after Construction Period (Final Report)

(i) Project Completion Report

The Consultant shall prepare and submit three (3) hard copies and electronic copy of the Final Completion Report within 30 days after the Substantial Completion of Construction Works. One (1) hard copy and an electronic copy of the report will be sent to the TANROADS Regional Manager's Office – Dodoma and the remaining

copies to TANROADS Headquarters. The report shall include among other things, as-built drawings, type, quality and quantity of materials used for construction of various sections and structures of the Project road and other relevant information that would enable TANROADS to apply for future maintenance or new construction works.

The report shall also include a summary of the principal difficulties encountered during construction and the means employed to overcome them, changes (if any) made in the original designs, modifications to specifications and conditions of contract, all variation orders, assessment of claims by the Design and Build Contractor, utilization of provisional and price variation and physical contingencies sums, cumulative monthly payments to the Contractor designated by date and number of payment certificate and break down into foreign and local currencies and including a similar payment schedule for Supervision Services. The details of the overall Project costs (construction and supervision) with justification for any significant differences with the original shall be given in the Final Report.

(ii) Final Completion Report

The Consultant shall prepare and submit to TANROADS, two (2) hard copies and an electronic copy of the Final Project Report and Final Account within three (3) months after the issuance of the Defects Notification and Final Payment Certificate. The Final Project Report shall include a separate volume on the maintenance proposal of the respective road section.

8.0 DURATION OF THE ASSIGNMENT

The duration of the assignment is 36 months for construction supervision and 18 months for defects notification period. The engagement shall be deemed to have started on the execution of the Agreement for the Services and shall terminate when the final inspection of the works at the completion of the defects notification period has been done and the Consultant has fulfilled all of his obligations. Note that review and approval of Design and Build contractor's designs is part of the stipulated 36 months of construction supervision.

9.0 PAYMENT TO THE CONSULTANT

9.1 General

- a) payments for undertaking the assignments as described in these Terms of Reference shall be made on monthly basis and cover remuneration for approved personnel and respective reimbursable expenses;
- b) the Consultant's remuneration shall be deemed to cover his statutory liabilities, travel costs and support of his Head Office including obligations other than additional services not covered by the Terms of Reference under consideration.

9.2 Costs

The costs shall be invoices and cover the Consultant's performance of his duties described in the Terms of Reference including the following:

- (i) monthly remuneration and subsistence allowances for expatriate personnel;
- (ii) monthly remuneration and subsistence allowances for local personnel;
- (iii) transportation of foreign-based key personnel and local travel costs;
- (iv) reimbursable expenses concerned with the production and printing reports, including associated secretarial expenses as described on paragraph 7 above;

- (v) shipment of personal effects that are appropriate for the assignment; and
- (vi) other relevant contractual costs which must be specified by the Consultant.

9.3 Reimbursable Expenses

Reimbursable expenses, which cover all out of pocket expenses and shall be made against contractual acceptable documentary evidence, as agreed with the Client.

10.0 LEAVE

Consultant's Staff engaged in the Supervision of the Construction Works will be entitled to 30 days leave per calendar year. In connection with leave, the Expatriate Staff are entitled to one round trip international travel per year, for which the Consultant will be reimbursed. Man-months during annual leave will not be paid. During the absence of leave, the Staff's duties shall be handed over to an appropriate Staff approved by the Employer.

11.0 PROJECT COORDINATION

- (i) The Consultant will be accountable to the Chief Executive, TANROADS for all contractual issues and shall work closely with the Director of Projects at Headquarters for all technical guidance enabling successful accomplishment of specific contractual tasks. The designated Project Engineer from TANROADS headquarters shall be a point of contact for day-to-day communication on project related matters.
- (ii) In the course of executing the assignment, the Resident Engineer shall maintain close liaison with the TANROADS Regional Manager Dodoma Region in order to obtain support services in relation to the assignment; particular those requiring consultation with the local and regional authorities.