

TERMS OF REFERENCE

FOR

CONSULTANCY SERVICES FOR DESIGN REVIEW AND CONSTRUCTION SUPERVISION FOR UPGRADING OF IRINGA (IPOGOLO) – IDETE REGIONAL ROAD; LOT 1: IRINGA - KILOLO SECTION (33.6 KM) TO BITUMEN STANDARD.

1.0 INTRODUCTION

The Government of the United Republic of Tanzania has received Financing from the World Bank towards the cost of the Tanzania Roads to Inclusion and Socioeconomic Opportunities (RISE) Project and intends to apply part of the proceeds of this Credit to eligible payments under the Contract for Consultancy Services for Design Review and Construction Supervision for Upgrading of Iringa (Ipogolo) – Idete Regional Road; Lot 1: Iringa - Kilolo Section (33.6km) to Bitumen Standard. The Road Improvement is part of the Government strategy to develop its road network to support the Socio-economic development of Tanzania.

The Project Development Objective (PDO) is to improve rural road access and provide employment opportunities for population in selected rural areas and build capacity in the sustainable management of rural roads incorporating community engagement approaches.

The RISE Project will address some of the urgent challenges in the rural road subsector in Tanzania. During its six years of implementation, it is expected that the RISE will set the foundation for the management of rural roads in Tanzania in the medium term from the policy, planning and implementation capacity perspectives and create a model for a national program. The RISE Project will assist in creating a philosophy of road asset management that will focus on the safe, inclusive and all-season access for rural communities to reach their social, education, health and financial services, and help link rural communities to markets and economic opportunities. Furthermore, the RISE Project will incorporate community engagement and gender-responsive approaches that will leverage social inclusion while reducing road safety risks, social risks such as SEA and SH in the workplace, and incorporate mechanisms to address contagious diseases, such as the COVID-19 outbreak, within its scope.

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 Design Review and Construction Supervision for Upgrading of Iringa (Ipogolo) – Idete Regional Road; Lot 1: Iringa - Kilolo Section (33.6km) to Bitumen Standard.

2.0 PROJECT DESCRIPTION

The Iringa - Kilolo Road Section is located in Iringa Region linking the Iringa Regional Headquarters with the Kilolo District Headquarters. The Road is traversing from Iringa (Ipogolo) towards the Eastern - Southern part of Iringa to Kilolo District Headquarters. The implementation of the project is intended to enhance economic growth by reducing transport costs and travel time as well as stimulating tourism, agriculture, forestry, mining and fishery along the project area of influence. Location of the project is presented in **Figure 1** below

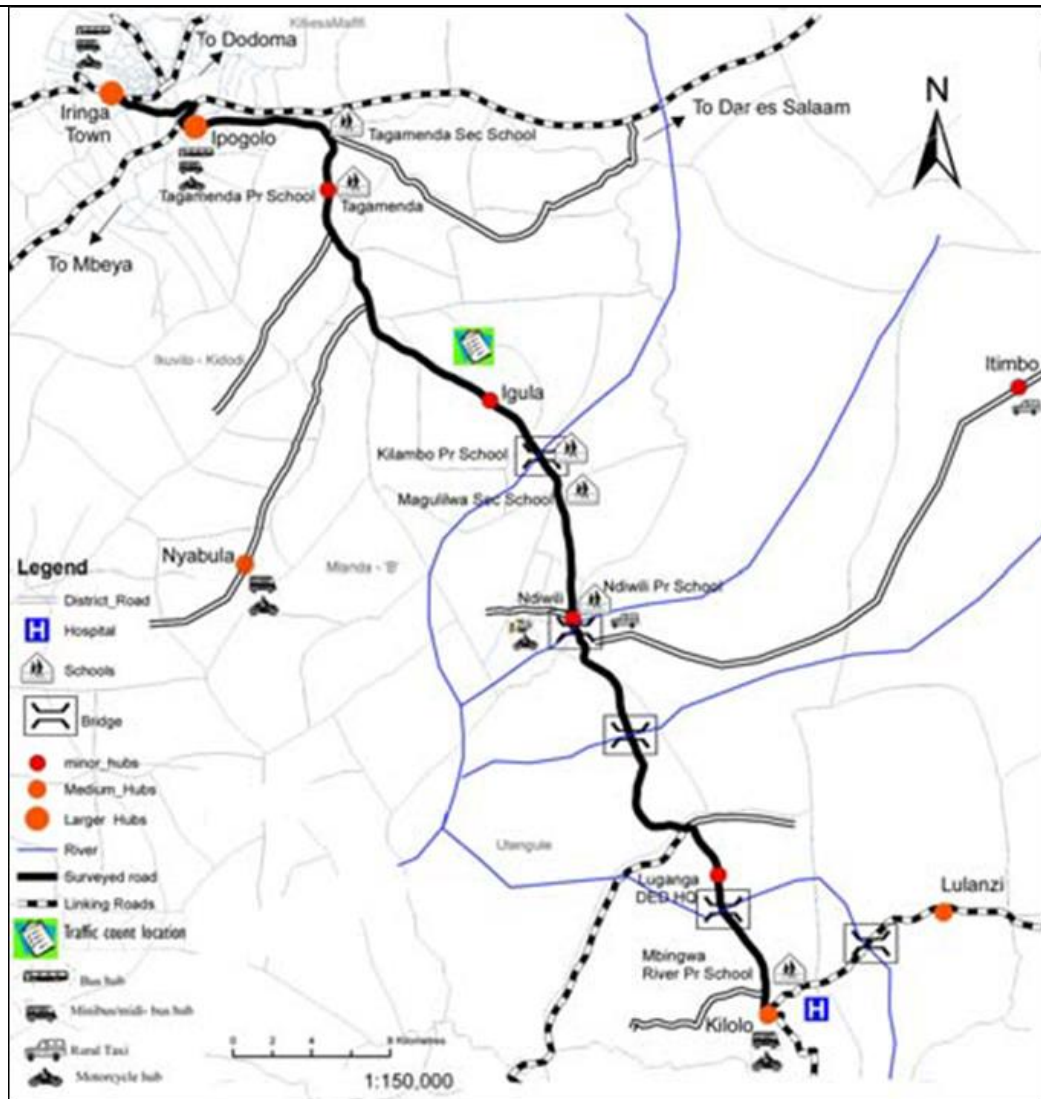


Figure 1. Road Map

The maintenance operations carried out at the moment on this road are Routine/Recurrent and Periodic Maintenance, involving road formation, gravelling, grading, vegetation control and de-silting of drainage structures on the existing road alignment. There is recently completed 10 km paved periodic maintenance section within the Project road and the current design has taken it into account, whereas its existing top pavement layers will be milled while some layers in the current design will be replaced by the existing similar layers.

The Feasibility Study, Environmental & Social Impact Assessment, Detail Engineering Design and Preparation of Tender Documents for Upgrading of Iringa (Ipogolo) – Idete Regional Road; Lot 1: Iringa - Kilolo Section (33.6km) to Bitumen Standard were completed in July, 2022 by M/s Inter-Consult Ltd of Tanzania.

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: -

- 50mm thick Asphalt Concrete Wearing Course Class SP 12.5 using PG 70-22 performance grade bitumen (maximum aggregate size 12.5mm);
- MC-30 Cut-back bitumen for priming of carriageway and shoulders;

- 150mm Base Course (CRR),
- Stabilized layer, Material Class C2 (150mm thick) for subbase;
- Stabilized layer, Material Class C1 (150mm thick) for subbase;
- Fill as Appropriate.

3.0 OBJECTIVES OF THE ASSIGNMENT

The objective of this assignment is to undertake Consultancy Services on behalf of the Tanzania National Roads Agency (TANROADS), the Client for the Design Review and Construction Supervision for Upgrading of Iringa (Ipogolo) – Idete Regional Road; Lot 1: Iringa - Kilolo Section (33.6 km) to Bitumen Standard.

The specific objectives of the Consultancy Services are:

- a) Carry out design review for the purpose of ensuring the correctness, completeness and compliance of the road design with internationally acceptable standards and latest available National Guidelines. The design review component shall involve a thorough scrutiny on at least the following packages:
 - i. Detailed engineering design for the road section under consideration, including from the people-centered design approach¹ perspective and the climate resilience perspective;
 - ii. Environmental and Social Impact Assessment (ESIA) 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;
 - 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), if any; 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 of the Works Contract to ensure that the works comply 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.
- c) Approval of Contractor's working program and drawings.
- d) Preparation of final construction report and as built drawings of all completed works.
- e) Preparation of the project reports.
- f) Inspection of completed works during the Defects Notification Period.
- g) Supervision of repair activities as well as the implementation of activities included in the snag list of construction during the Defect Notification Period.

4.0 SCOPE OF SERVICES

¹ For more information on the people-centered design approach please refer to the People-Centered Design Approach Manual.

4.1 Design Review

The Consultant shall perform all the required updates from the finalized design including update of the cost (Engineer's Estimate) and ESIA reports done by M/s Kimsons Ltd. In particular the Consultant shall review all the available and relevant documents including People-Centered Design Approach Manual, Design report, maps, drawings, previous studies, if any, and perform the updates to the Detailed Engineering Design, Environmental and Social Impact Assessment including an Environmental Management Plan, Resettlement Action Plan (RAP) by taking into account recommendations of the Community, Client, IDA and compliance with the National Environmental Management Council (NEMC) Guidelines and the Land Acts No. 4 and No. 5 of 1999. No separate time duration is provided for design review exercise but it is planned to start and be completed within three months of the Contractor's mobilization period.

The purpose of this review is to ensure that the documents and data are correct, complete, update 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 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 climate change adoption, 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 at the major centres,
- (viii) Conducting a climbing lane warrant analysis and determine appropriate locations for their provisions,
- (ix) The Consultant is also required to incorporate in the design, the RSSAT (Road Safety Screening Appraisal Tool) output which will be provided by the TANROADS HQ,
- (x) Updated Bills of Quantities (BOQ), if any;
- (xi) Safeguards Compliance in line with WB ESF requirements,
- (xii) Alignment with the People-Centered Design Approach,
- (xiii) 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,
- (xiv) Study effects of climate change including effects of increased rainfall, unusual storms leading to flooding, higher temperature due to global warming etc. on the road profile, road pavement and cross drainage structures during their design life and propose appropriate remedy works.

- The Consultant is required to give consideration to environmental aspects and the climate change aspects in finalizing the design review,
- (xv) 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,
 - (xvi) Verify the hydraulic capacity of existing bridges and drainage structures along the project road, and to determine the requirements for the longitudinal drainage system,
 - (xvii) Review pertinent data and historic rainfall data 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,
 - (xviii) Review the catchment area, adopted runoff coefficients based on topography, permeability of soil and vegetation cover, and
 - (xix) Review the analysis performed to compute design discharge, design HFL and various other hydraulic parameters, 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.

4.2 Construction Supervision of Upgrading Works

The Consultant shall be fully responsible for the supervision of the construction in accordance with the FIDIC Conditions of Contract. The Consultants shall, in general, exercise the powers of the Engineer in all matters concerning the contract and the execution of the works. The Consultant shall supervise the construction works with due diligence and efficiency and in accordance with sound technical, administrative, financial and economic practices.

The Consultant 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 be limited to the following:

- (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 and rehabilitated once the construction project is completed;
- (ii) Receive, analyze and approve the 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 Contractor as required by the Works Contract and advise the Client accordingly,
 - (iv) Check and establish that the Contractor mobilises 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 Contractor for execution of Works before submitting the same to the Client,
 - (vi) Study/review the design, ESIA, RAP and contract documents, and other relevant documents prepared by the 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) 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;
 - (viii) Satisfy himself thoroughly of the nature and scope of the works, of all information and documents available, the materials and equipment to be used by the contractor in executing the works as to enable him to perform his duties satisfactorily, study and check all documents associated with the projects, foresee possible problems and advise TANROADS appropriately during the construction and repair (defect notification) period;
 - (ix) 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;
 - (x) 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 Contractor is given possession of site;
 - (xi) Identify and locate all beacons and benchmarks, confirm their compatibility with the designs, cause Contractor to re-establish the

- missing ones where needed in accordance with the works requirements and agreed specifications and hand over to the Contractor before commencement of the works to enable the Contractor set out and construct the works;
- (xii) Inspect, test and approve all materials and completed works to ensure compliance with technical specification requirements;
 - (xiii) 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,
 - (xiv) 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 Contractor to discuss the findings and recommendations of the RSA.
 - (xv) Keep updated all records including reports, works diaries, correspondence, instructions given to contractor(s), test records, measurement and quantity calculations, payment records and all other relevant documents pertaining to the works operations and supervision contracts;
 - (xvi) 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;
 - (xvii) Review and approve 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 Contractor for construction purposes. The plan should also outline the process for effluent and water discharge quality monitoring;

- c) 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) Health and Safety Management Plan, to ensure health and safety of workers; including use of protective clothing; HIV/AIDS and COVID-19 awareness and prevention, including sensitization and counselling; drug and substance abuse, and avoidance of child labour and child abuse.
- (xviii) 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 labor/ labor trafficking and avoidance of child labor, in particular worst forms of child labor. In the context of management of labor influx, establish and operate a worker grievance redress mechanism for project workers in line with the project LMP and ESS2.
- (xix) Direct and monitor the implementation of traffic safety and HIV/AIDS, STI and TB awareness Sensitization campaigns & programs 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 qualified Public Health Expert/Sociologist as part of the supervision team;
- (xx) Perform routine and periodic comparison between the works' schedules and the actual progress of works, and cause the Contractor to review the program whenever the previous program is inconsistent with the actual works on site or with the Contractor's obligations,
- (xxi) Prepare control charts of the main activities and a project master schedule, indicating both past performance and forecasts for completion including time involved in each case;
- (xxii) 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;

- (xxiii) Record, examine and evaluate all claims submitted by the 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,
 - (d) Consultant's conclusions and recommendations on the claim.

- (xxiv) Determine the unit rates for new items of Works in the contract and submit to TANROADS for approval;

- (xxv) 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. An 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 Contractor to discuss the findings and recommendations of the RSA.

- (xxvi) 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;

- (xxvii) 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;

- (xxviii) Maintain a site diary on a daily basis with the contents and format to be agreed with TANROADS;

- (xxix) 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.

- (xxx) Provide appropriate instructions to Contractor in order to protect, store or secure a part of the completed or on-going works against any serious deterioration, loss or damage
- (xxxii) 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;
- (xxxiii) Prepare and submit to the Client the Final Report at Substantial Completion and Final Completion Reports at the end of the defects notification period
- (xxxiiii) Prepare and submit to TANROADS the final account of executed works;
- (xxxv) Review and approve the as-built drawings prepared by the Contractor;
- (xxxvi) 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.
- (xxxvii) The Consultant shall ensure that the Contractor's ((Environmental, Social, and Health and Safety - ESHS) ESHS performance is in accordance with TANROADS Environmental, Social, and Health and Safety (ESH) Code of Conduct (accessible through <https://www.tanroads.go.tz/policies>), Contractor's ESHS obligations and good international industry practice. The ESHS related services include but are not limited to: -
 - a) Review and approve the Contractor's Environment and Social Management Plan (C-ESMP) prior to any construction works, including all updates and revisions (within a reasonable time and prior to any significant works that would be covered by the proposed material changes) in consultation with the Environmental, HS or Social specialists of TANROADS;
 - b) Monitor the implementation of the Contractor's ESHS requirements, including impact mitigation and monitoring measures, during the construction of the works,
 - c) Review and approve ESHS provisions of method statements, implementation plans, GBV/SEA prevention and response action plan, drawings, proposals, schedules and all relevant Contractor's documents;

- d) 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;
- e) 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 Gender Based Violence (GBV)/ Sexual Exploitation and Abuse (SEA) obligations, with and without contractor and/or client relevant representatives, as necessary, but for GBV related issues not less than once per month,
- f) review the Contractor's EHS workers training and related materials and activities related to workers whom predominate language is Swahili,
- g) Develop and maintain ESHS checklists and supervision reports related to audits and inspections related to Contractor's ESHS compliance and performance,
- h) Routinely review and undertake audits and inspections of 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 Contractor's compliance with ESHS requirements;
- i) Promptly report any identified non-compliance issues to Construction 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 Contractor's ESHS obligations remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor's ESHS obligations;
- j) 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),
- k) In relation to all significant material and service providers to the Contractor (such as sites/provides 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
- l) Ensure appropriate representation at relevant meetings including site meetings, and progress meetings to discuss and agree appropriate actions to ensure compliance with ESHS obligations;
- m) 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;
- n) Undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ESHS issues
 - o) On behalf of TANROADS, establish and maintain a grievance redress mechanism with support of the 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.
 - p) Ensure any GBV/SEA instances and complaints that come to the attention of the Consultant are registered in the grievance redress mechanism,
 - q) Prepare and submit to TANROADS, as part of monthly progress report, issues on ESHS project construction compliance and performance (see Section 6 for details),
 - r) Upon completion of project construction or closure of any specific work area or camp site, perform an inspection of such site/area to ensure Contractor's compliance with ESHS requirements and whether there are any existing unmitigated ESHS impacts, and if issues are identified then promptly notify the Contractor and TANROADS and work with such entities to define acceptable remedial actions to resolve all issues.

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 the purposes of fulfilling Consultant's obligations during the Defects Notification Period, the Road Safety Engineer is expected to undertake post construction Road safety Audit while 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 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 12 months, a total of three (3) inspections will be carried out at 4 months time interval during the 12-month period (each inspection visit shall be extended for a maximum period of seven (7) calendar-days consecutively) after substantial completion of the works and any deficiencies noted along the road and its remedial measures be proposed to the Contractor. Depending on the nature of deficiency, repair work will be carried out under the Consultant's supervision. The Consultant will be required to submit the inspection report to the Client. At the end of the 12-month notification period, the Consultant will do inspection and confirm that the Contractor has completed Works ready for joint inspection and handover. A final inspection will be carried out under

the supervision of the Resident Engineer who will prepare and sign the Inspection Report and distribute to the Contractor, TANROADS HQ and Regional Manager Iringa 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. The engineers 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, including preparation of as-built drawings and final report.

5.0 CONSULTANT’S PERSONNEL

5.1 Key Staff

The Professional staff to be provided by the Consultant is estimated at **196 person-month** covered by the services of: Resident Engineer, Pavement/Materials Engineer, Highway Engineer, Topographical Surveyor, Bridge/Structural 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 person-months during which the staff will be deployed under the Contract.

The Key Professional Staff input and support staff input to be provided by the Consultant is estimated at 196 and 200 person-months respectively. The desirable inputs of key staff are provided as follows:

Stage	Estimated Staff months Design Review and Supervision of Works for Upgrading of Iringa – Kilolo Road (33.6 km) to Bitumen Standard	
1	During the Design Review and Construction Supervision	
	Key Position	Staff Month

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	Resident Engineer	24
	Highway Engineer	24
	Pavement/Materials Engineer	24
	<i>Bridge/Structural Engineer</i>	12
	Topographical Surveyor	24
	Environmentalist	20
	Sociologist	20
	Health and Safety Officer	20
	Road Safety Engineer	24
	Sub-Total 1	192
2	During Defects Notification Period	
	Key Position	Staff Month
	Resident Engineer	1
	Road Safety Engineer	1
	Road Inspector	1
	Materials Technician	1
	Sub-Total 2	4
	TOTAL	196

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

The Design Review and the Construction Supervision shall be carried out by Professional Key Staff with the following qualifications and experiences:

5.3.1 Resident Engineer (K-1):

The Resident Engineer shall head the site staff and shall be responsible for all technical and administrative aspects on site.

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

She/he must have a minimum of twelve (12) years of specific experience related to road/bridge design and construction supervision. An Experience in contract administration under FIDIC Conditions of Contract is an added advantage. She/he must have served as a Project Manager/Resident Engineer or in an equivalent capacity on at least three (3) bituminous road construction 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 developing countries and shall be proficient in written and spoken English.

5.3.2 Highway Engineer (K-2):

The Highway Engineer duties shall comprise road surveys, construction of pavement structures, measuring 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 is an added advantage.

She/he must have a minimum of ten (10) years of specific experience related to road/bridge design and construction. She/he must have served in a similar capacity on at least three (3) projects for construction of bituminous roads 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 Pavement/Materials Engineer (K-3):

Pavement/Materials Engineer shall 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 Pavement or Materials Engineering. Postgraduate qualification in Pavement or Materials Engineering is an added advantage.

She/he must have a minimum of ten (10) years of specific experience in Pavement/Materials matters related to road works. She/he must have served in similar capacity in at least three (3) 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 developing countries and must be proficient in written and spoken English.

5.3.4 Bridge/Structural Engineer (K-4):

Bridge/Structural Engineer shall 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/Structural Engineer in at least three (3) road/bridge 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.

5.3.5 Road Safety Engineer (K-5)

The Road Safety Engineer will be responsible for monitoring of day today implementation of Road Safety issues under the Project and ensure compliance by the Contractor with all Road Safety issues and plan. He/she will 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 twelve (12) years of specific experience in Road Safety Audits/design and construction.

She/he must have served as a Road Safety Engineer in at least three (3) 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.

5.3.6 Topographical Surveyor (K-6):

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 analysing 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. The surveyor 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 three (3) 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 developing countries and shall be proficient in written and spoken English.

5.3.7 Environmentalist (K-7)

The Environmentalist, Health and Safety specialist shall be responsible for the monitoring of day to day implementation of the MSIP, Contractor ESMP, and environmental health and safety (EHS) issues under the project and ensure compliance by the Contractor with all EHS Plans in order to help avoid, minimize, mitigate and remediate if necessary any negative EHS impacts and risks from the project.

She/he must be a registered Environmental Expert with a degree in Environmental Management Studies. A Post graduate qualification in Environmental and Social Management is an added advantage.

She/he must have sound knowledge of environmental issues, initiatives and implementation of mitigation measures related to civil engineering infrastructure projects. She/he must have served as an Environmental Specialist/Expert on at least three (3) projects of similar magnitude and complexity within the last ten (10) years.

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.

5.3.8 Sociologist (K-8)

She/he shall be responsible for 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 on 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, including law, is an added advantage.

She/he must have sound knowledge of environmental and social issues, initiatives and implementation of mitigation measures related to civil engineering infrastructure projects. She/he must have served as Social Specialist/Expert on at least three (3) 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 and 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 have a working experience of at least three (3) years in developing countries and shall be proficient in written and spoken English.

5.3.9 Health and Safety Officer (K-9)

She/he 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 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.

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, Social work or Community Development. 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 Expert on at least three (3) 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 required support and back-up staff to assist in the successful execution of this assignment including staff in the following categories:

- (i) Works Inspector – Road works (2 No.);
- (ii) Works Inspector – Drainage and Structures (1 No.);
- (iii) Materials Technicians (2 No.);
- (iv) Assistant Surveyor (1 No.);
- (v) CAD Technician (1 No.); and
- (vi) Office Secretary (1 No.).

Note:

CVs for Support Staff will not be evaluated.

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 and Transport the opportunity to inspect the works and the related documentation.

6.0 ADDITIONAL SERVICES

The Consultant shall provide any other additional services (an overarching “catch all” but “reasonable or minor design modifications”) if so requested by the Client, at rates and under conditions to be mutually agreed which fall within the general ambit of these Terms of Reference.

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

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

7.1 Data, Services and Facilities to be provided by the Client

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 design review and supervision of the construction works.
- (b) Fully furnished and equipped office space on the site for the members of the supervision team, including maintenance, water, electricity, office supplies and consumables.

- (c) Eight (8) vehicles: 2Nos. Brand New Diesel Powered 4WD Station Wagons (engine capacity 3000cc) i.e. one for the Resident Engineer, one for TANROADS RM – Iringa/ TANROADS HQ Project Engineer. 6Nos. Brand New Diesel Powered 4WD Double Cabin Pickups (engine capacity 2800cc) to be used by the Consultant's staff
- (d) Accommodation: 2Nos. Type I house; 1No for Client and 1No for Resident Engineer 4Nos. Type II House for the Supervision Staff and 3Nos. Multiple Accommodation, Wash House, Office Accommodation and Materials Testing Laboratory.
- (e) Materials Testing and Surveying Equipment
- (f) Airtime for eight (8) Mobile Phones for project communication purposes: 2Nos. for TANROADS staff at HQ and Iringa region and 6Nos. for the Consultant Staff.

7.2 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 as deemed applicable.
- (b) Obtain ministerial orders, sanctions, licenses and permits in connection with the works as deemed applicable.
- (c) Provide introduction letter that would assist the consultant in the process to register a non-Tanzanian firm and key staff with the Engineers Registration Board or equivalent bodies. Any associated cost will be borne by the Consultant.

7.3 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.

8.0 REPORTING

The required reports shall be submitted three (3) copies to TANROADS Headquarters and one (1) copy will be sent direct to the TANROADS Regional Manager's Office – Iringa Region both in hard copies (i.e. full color prints and perfect binding type) together with softcopy 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.

8.1 Design Review Report

The Consultant shall prepare a draft Design Review Report three (3) months after the commencement date of the Consultancy services. This report shall include results of the review of the design, drawings, and ESIA including an Environmental Management Plan, Resettlement Action Plan (RAP) reports. The draft design review report shall be submitted to TANROADS (6 copies) and one copy submitted to IDA for review within two months. The final design review report incorporating comments and approved design improvement should be submitted within one (1) month after receiving comments

8.2 Reporting During Construction Period

8.2.1 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 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, 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 misbehaviour, 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 Client immediately;
- (c) Immediately inform and share with the Client 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; and
- (d) Share with the Client in a timely manner the Contractor's ESHS performance and metrics, as required of the Contractor as part of the Monthly Progress Reports.

8.2.2 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 contractor's work program, any modifications thereto, status of the consultant and contractor's mobilization, ESHS Contractor requirements or other ESHS plans or documents and any other matter requiring the Client's action. This report shall be submitted in three (3) copies to TANROADS one month after commencement of the works contract. One copy will be sent to TANROADS Regional Manager's Office, Iringa. 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.

8.2.3 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 Iringa.
- (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 Contractor.
- Contractor's ESHS performance, any non-compliance issues and relevant remedial actions taken or being taken.

8.2.4 Road safety Audit Report

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 Iringa. four copies to TANROADS HQ.

8.2.5 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 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 five (5) copies submitted to TANROADS Headquarters and one copy will be sent to TANROADS Regional Managers-Iringa. The Consultant shall make an update of detailed progress report when 80% of works contract has been completed.

8.2.6 Report after Construction Period (Final Report)

(i) Project Completion Report

The Consultant shall prepare and submit Final Completion Report within 30 days after the Substantial Completion of Construction Works in ten (10) copies submitted to TANROADS Headquarter, one (1) copy to the TANROADS Regional Manager Office – Iringa. 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 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 Final Project Report and Final Account within three (3) months after the issuance of the Defects Notification and Final Payment Certificate in ten (10) copies to TANROADS and one (1) copy sent to the TANROADS Regional Manager Office – Iringa. The Final Project Report shall include a separate volume on maintenance proposal of the respective road section.

9.0 DURATION OF THE ASSIGNMENT

The duration of Construction Supervision and Defects Notification Period is **24 months and 12 months** respectively. The engagement shall be deemed to have started on 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 the duration for the Design Review is part of the first 24 months of the construction supervision.

10.0 PAYMENT TO THE CONSULTANT

10.1 General

- (i) 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;
- (ii) 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.

- (iii) The costs shall be invoiced to 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 design review, 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.

10.2.2 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.

10.2.4 Other payments

No other payments will be made to the Consultant under this contract.

11.0 LEAVE

The Consultant's key Staff engaged in the Supervision of the Construction Works will be entitled to 28 days leave per calendar year. In connection with leave, the Expatriate Staff are entitled for 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 Client.

12.0 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.
- (ii) In the course of executing the assignment, the Consultant's Resident Engineer shall report to the respective TANROADS Regional Manager – Iringa Region and obtain support liaison services in relation to the assignment; simultaneously the incumbent shall take charge of the operations and acceptable performance of duties and responsibilities of all Key and Support Staff as described on Section 4.0 above.