THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF PRESIDENT'S OFFICE, REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

SUMBAWANGA MUNICIPAL

CONTRACT NO. LGA/098/HQ/2022/2023/W/43
UPGRADING OF CENTRAL BUSINESS DISTRICT (CBD) ROADS IN SUMBAWANGA MUNICIPALITY (TACTIC) PROJECT


TRAFFIC MANAGEMENT PLAN

Submitted to

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LIST OF ABBREVIATIONS

CEC	Code of Ethical Conduct
CGC	China Geo-Engineering Cooperation
CLO	Community Liaison Officer
COVID-19	Coronavirus Disease 2019
EHSMP	Environmental Health and Safety Management Plan
CSC	Construction Supervisor Consultant
HGV	Heavy Goods Vehicle
HIV/AIDs	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HS	Health and Safety
HSM	Health, Safety and Manager
HSMP	Health and Safety Management Plan
Km	Kilometre
LGAs	Local Government Authorities
LHS	Left Hand Side
LTI	Lost Time Injury
MCR	Monthly Compliance Report
NA	Not Applicable
NGOs	Non-Governmental Organizations
OHS	Occupational Health and Safety
OSH	Occupational Safety and Health
OSHE	Occupational Safety, Health and Environment
PPE	Personal Protective Equipment
RE	Resident Engineer
RHS	Right Hand Side
SA	Site Agent
SC	Supervision Consultant
STDs	Sexual Transmission Diseases
TARURA	Tanzania Rural and Urban Roads Agency
HCL	Howard Consulting Limited
TMO	Traffic Management Officer
TMP	Traffic Management Plan
TRA	Tanzania Revenue Authority
TTCL	Tanzania Telecommunications Company Limited
SUWASA	Sumbawanga Urban Water Supply
URT	United Republic of Tanzania
WB	World Bank

1 INTRODUCTION

The Government of the United Republic of Tanzania has received financing from the World Bank towards the cost of the Tanzania Cities Transforming Infrastructure and Competitiveness (TACTIC) Project coordinated by the President's Office, Regional Administration and Local Government (PO-RALG) through a Project Coordination Team (PCT) and intends to apply part of the proceeds toward payments under the contracts for **Package 1 - Upgrading of Central Business District (CBD) Roads in Sumbawanga Municipality**. The road improvement is part of the Government strategy to develop its road network to support the socio-economic development of the country including facilitation of mobility, movements of goods and persons along the project corridor including the central corridor networks.

Sumbawanga Municipal (hereinafter referred to as the Employer), has awarded M/s China Geo-Engineering Corporation (hereinafter referred to as the Contractor) to undertake the work named as *'Contract No. LGA/098/HQ/2022/2023/W/43,* '**Package 1 - Upgrading of Central Business District (CBD) Roads in Sumbawanga Municipality (TACTIC) Project** *to Bitumen Standard;* (hereinafter referred to as the Project).

Table 1: List of project road

Project Road	Total Length (Km)	Start-Coordinates	End-Coordinates
Sido – Senga – Mafulala Road	2.7	36M 348193E 9121826N	36M 349700E 9121432N
SOKOLO – BIBLE – MBEYA ROAD	2.6	36M 348408E 9117592N	36M 350987E 9117579N
Mandela Road	0.398	36M 346705E 9120052N	36M 346388E 9119840N
Muva Road	0.2	36M 347134E 9119645N	36M 347007E 9119807N
Maweni II Road	0.4	36M 349224E 9117811N	36M 349192E 9118157N
New Municipal Hospital Access Road	1.95	36M 342508E 9119252N	36M 342252E 91199371N
Maendeleo Road	0.256	36M 347206E 9119650N	36M 347057E 9119845N
Kasema Road	0.489	36M 347352E 9119660N	36M 347063E 9120037N
Karangasa Road	0.534	36M 34741E 9119667N	36M 347107E 9120077N
Kimati – Ufipa Road	0.2	36M 347303E 9119731N	36M 347399E 9119806N
Reginal Block – Msakila Road	1.25	36M 348325E 9119616N	36M 347500E 9120412N

This Traffic Management Plan forms a part of the requirement for Road Safety and what will be implemented entirely to provide a safe environment for all road users during upgrading Central Business District (CBD) Roads in Sumbawanga Municipality.

1.1 RATIONALE OF TRAFFIC MANAGEMENT PLAN

A Traffic Management Plan (TMP) is a site-specific plan that covers the design, implementation, maintenance, Placement and or removal of Temporary Traffic Management (TTM) measures while work or activity is carried out. It is the management of occupational

safety and network performance of risks associated with work activities undertaken in a traffic environment. Risk Management and the elements of the risk management process form the basis of this Traffic Management Guideline. TMPs are prepared in advance of the works being conducted and subjected to reviewing and/or auditing during project implementation.

1.2 PURPOSE AND SCOPE FOR TRAFFIC MANAGEMENT PLAN

The Traffic Management Plan describes ongoing procedures and protocols for site access, traffic routing and management, and company policy with respect to vehicle and employee transportation during construction activities. This TMP is prepared in line with the Tanzania regulations, A guide to Traffic Signing, a guide to road safety auditing, and as per bidding requirements provided by the Client.

Contractor's employees and the public in general are the main target for this Traffic Management plan (TMP). The scope of this TMP will be limited to entrance and exit throughout project roads under construction, Campsite, borrow pit, quarry sites and any other necessary points that seem to be affected.

1.3 OBJECTIVES

The main objective of this Traffic Management Plan (TMP) is to enable a better distribution of traffic through provision of an arrangement that will involve use of traffic signs and devices to control traffic. . It is intended to promote a uniform standard of traffic control associated with special events, incident management, and work area protection along the road project for the duration of the project.
Specifically, the plan seeks to:

- Provide safe environment for all road users, pedestrians and cyclists;
- Provide protection to road users, project workers and the general public from traffic hazards that may arise as a result of the project activities;
- Minimize the disruption, congestion and delays to all road users;
- To ensure network performance is maintained at an acceptable level throughout the project duration; and
- Ensure safe access to adjacent commercial and residential premises is maintained at all times.

In order to achieve the above objectives, the Traffic Management Plan will:

- Avail a sufficient alternative road to accommodate vehicle traffic volumes
- Ensure that delays and traffic congestion are kept to a minimum and within acceptable levels;
- Ensure that appropriate&sufficient warning and information signs are installed and that adequate guidance is provided to delineate the travel paths through the working area;
- Ensure that the road is free of hazards and that all road users are adequately protected from obstructions resulting from construction activities; and

- Ensure that all needs of road users, motorists, pedestrians, cyclists, public transport passengers are accommodated at and through the project site.

1.4 SITE CONDITIONS INCLUDING TRAFFIC FLOW ANALYSIS

Central Business District (CBD) roads in Sumbawanga Municipality pass through a well-planned area having pedestrians and vehicle movements during day and night. The major care to be taken is on public vehicles, construction vehicles and workers who are working in construction area. Contractor's team in collaboration with Sumbawanga traffic police will conduct traffic and safety awareness for public and workers.

1.5 RESPONSIBILITIES

In order to ensure that there is a safe environment for all road users, project workers and the general public during construction activities, its crucial that every stakeholder leads by example by understanding and supporting traffic management. The following personnel will have key responsibilities in ensuring the implementation of this plan;

Table 2: List of Personnel and their Responsibilities

Personnel	**Duties/Responsibilities**
Site Manager	• Ensuring that the project's road safety and traffic management objectives are achieved • Ensuring that all the incidents caused by site activities, and other incidents which are unrelated to the construction activity are properly reported • Coordinating incident reporting • Ensuring requirements of the contract are met
Highway Engineer	• Ensuring that the Road users use the correctly shown Traffic Diversions, • Ensuring that proper temporary signs are installed • Ensuring that the Road users are safe, • Ensuring that correct Road Signs are erected at correct and secure locations along the Project Road.
Site Foreman	• Responsible for ensuring traffic management – traffic is properly planned, organized, directed and controlled. • Ensuring there is enough resources (people, equipment, facilities and systems) for controlling traffic
Traffic Manager	• Ensuring the implementation of this TMP • Selection and management of traffic controllers • Ensuring that the requirements of all the plans are properly implemented • Oversees every aspect on Traffic issues including documentation and reviews • Ensuring the traffic management tools are set out in accordingly such as proper signage

	• Regularly reviewing the continuing suitability, adequacy, and effectiveness, of all this plan
Traffic Controller	• Controlling and monitoring traffic during project activities • Comply with the requirements of the TMP and ensure no activity is undertaken that will endanger the safety of all road users, project workers and the general public
Flagmen	• Ensuring smooth and safe vehicular movement along the Project Road by flagging off allowed oncoming traffic and stopping others to ensure safety.

1.5.1 Plant and Equipment

All plant and equipment at the workplace will meet statutory requirements and have the required registration, licenses or certification. All mobile equipment will be fitted with suitable reversing alarms. All mobile plant and vehicles will be fitted with a pair of rotating flashing yellow lamps. Workers will be trained to adapt to any change and be aware of the safe work practices at the time. Toolbox meeting shall be held before execution of any work and record of there shall be maintained.

1.5.2 Accident/ Incident Procedures

In the event of an incident or accident, whether or not involving traffic or road users, all work shall cease and traffic shall be stopped as necessary to avoid further deterioration of the situation. First Aid shall be administered as necessary, and medical assistance shall be called for if required. For life threatening injuries an ambulance shall be called. Any traffic crash resulting in non-life-threatening injury will be immediately reported to Police station. If an accident happens, immediately we will keep record in a format as shown on the appendices II.

1.5.3 Site Communication system

The contractor in collaboration with consultant and employer will formulate a proper communication system. The communication will be in a closed group by which any staff members sharing any issues related to traffic, health, safety and environment. The group will also comprise top management from contractor, client and consultant. This will enable top management to be aware of anything that happens within the site and provide proper solutions or instruction to the responsible person to deal with it.

2PROJECT ACTIVITIES

This TMP covers two phases of the project – mobilization (pre-construction) phase and construction phase.

2.1 PRE-CONSTRUCTION PHASE

During this phase, the focus will be on:

- Document preparation (TMP, Letters, Checklists) and legal compliance (reporting to local leaders and traffic police stations);
- Mobilization of equipment to the work-site such as escorts for bulldozer, excavators, motor graders, vibrating rollers, crusher, drilling wagon, wheel loaders and related equipment which will be carried on flat-bed trucks to respective working areas;
- Provision of necessary PPE including reflectors and where needed a flag person to monitor the vehicles approaching and leaving the construction site; and
- Production and preparation of road signs (stickers, stands/poles, sign-frames) used in construction activities.

2.2 CONSTRUCTION PHASE

The major construction activities will involve:

- Clearing the corridor;
- Excavation and transport of materials (Gravel, Sand, Aggregates, Water, Asphalt, Cement, Fill Material and Bitumen);
- Construction of road embankments, Construction of road formation, establishment of sub-base and base, road surfacing;
- Construction of drainage structures;
- Construction of box and pipe culverts and bridge;
- Construction of bus bays for major roads; and
- Construction of ancillary facilities.

The corresponding traffic control and management activities during this phase will, include the following:

- Ensuring that all sign boards used meet the established standards required including use of clean and reflective materials/sheeting;
- Provision and delineation of temporary traffic control signs to respective work sites;
- A trained team of competent personnel who be in charge of traffic control on sites and ensuring continuous training of personnel in handling different aspects of traffic situations (areas with high traffic and varied behaviors among road users); and
- Routine inspection, control and management of traffic on working site.

3 LEGISLATIVE AND OTHER PROVISIONS

The Contractor's traffic management plan has been developed and will be implemented with due consideration and in accordance with the compliance of the following legislative, environment and industry standards.

3.1 OCCUPATIONAL SAFETY AND HEALTH ACT, NO.5 (2003)

This Act deals with the protection of human health from occupational hazards. It requires the employer to ensure the safety of workers by providing safety gears at the work place, and also provides for the employer to ensure that Occupational Health and Safety issues are adequately considered during construction, operation and decommissioning. The Health and Safety Personnel will ensure that Contractors are aware and that labourers are provided with appropriate safety gear. With the help of Health and Safety Officer and the project manager the Contractor will comply with the provisions of this Act by implementing Health, safety and Environment rules.

3.2 ROAD TRAFFIC ACT, CAP 168 (2017)

The act is for the purpose of;

1. Ensuring registration of every motor vehicles to be used by the contractor
2. Employed drivers have a valid driving license
3. The contractor should ensure that, the condition of motor vehicles used in construction process is good
4. Ensuring permissible weight in that every load on a vehicle shall be arranged and secured to prevent that load from endangering persons or causing damage to public or private property
5. The contractor will also ensure that the drivers employed for running the vehicles do not exercise Reckless or dangerous driving,
6. Driving a motor vehicle while under the influence of alcohol is prohibited
7. Compliance with speed limit etc.

Contractor will ensure that all of the issues discussed above are closely followed in order to fulfil the requirement of this act and to avoid accidents.

3.3 ROAD TRAFFIC CODE

The code requires the Speed limits for vehicles not exceed the default speed limit for that vehicle. For example, a person shall not drive a vehicle in a built-up area, at a speed exceeding 25km/hr, except within a speed zone in which a higher speed is permitted. It also talks about the speed limit in the shared zone that should not exceed 10 km/h. It also talks about the way of giving signals that a driver shall not turn right or left, or stop or suddenly decrease speed, without giving warning of his or her intentions. Contractors will make sure that all of these issues are well known to their employed drivers in order to prevent unnecessary complications and accidents during project execution.

3.4 A GUIDE TO TRAFFIC SIGNING

This guide provides information on the use of traffic signs and covers all kind of signs including road markings, road signs, and traffic signals and signing at road works. The guide provides classification of traffic sign into Regulatory, Warning, Guidance and Information.

Regulatory signs; these signs are used to control the action of road user in the interests of safety and the efficient use of road space and grouped into control, command, prohibition and reservation.
Secondary message signs are necessary to qualify the message on a regulatory sign and it never used on their own, it should be mounted on the same sign plate as the primary sign.

Temporary signs; when command, prohibition and reservation group signs are used for temporary restriction, such as at road works, they should have yellow background and the sign number for these temporary versions start with 'T'. Example TR201 version for R201; Speed limit sign.

Warning Signs; these signs are used to alert drivers to danger or potential danger ahead. They indicate a need of extra caution by road users and may require a reduction in speed or other plan and are grouped into two groups advanced warning signs and Hazard marker signs. Also, in warning signs their Supplementary Plates, Temporary Sign, Sitting and Sizes.

Guidance Signs; these signs give road users information on how to find their way to their destination. They also help to reduce delay and keep traffic flowing smoothly and safely through junctions.

3.5 A GUIDE TO ROAD SAFETY AUDITING

This guide is systematic and formal safety performance examination of a road project. The objective is to identify potential safety problems, so that, where possible, the design can be improved to eliminate or reduce them. Road safety auditing follows the principle of "prevention is better than cure" and it conducted in the planning or design stage to allow a line on a plan to be changed.

Safety audits involve three parties as follow;
The audit team; Comprises of safety specialist who is commissioned by client to perform the audit and produce an audit report that identifies the potential safety problem and suggest what should be done about them.
The design team; this part is responsible for design and they will be asked to comment on audit report
The client; this part is representative of the road authority and local government
The Guide of Road and Safety Auditing gives general information on the following procedure;

- The conducting of road safety audits where by this section provide following information; the audit process, initiating the audit, providing the background

information, studying the plan and inspecting the site, holding a commencement meeting with the designer and clients, Undertake the audits, writing the audits report, holding a completion meeting, Final auditing record and Follow-Up.

- Types of safety Audit; this includes stage 1 Audit (Feasibility studies), stage 2 Audit (Preliminary Design), stage 3 Audit (Detailed Design), Stage 4 Audits (Road works), Stage 5 Audits (Pre-opening), Stage 6 Audits (Post-opening and existing roads), Audit of traffic management Schemes and Audit of Building Development
- Checklists
- Term of Reference for a Road Safety Audit

4 GENERAL FEATURES OF THE PLAN

During construction of Central Business District (CBD) roads in Sumbawanga Municipality-TACTIC project in order to manage traffic flow, there will be a plan for use alternative road of all road users that will go to or from Sumbawanga municipality. The plan is aimed to avoid construction equipment from interfering free flow of public traffic, pedestrian and cyclists hence ensure a safe environment for both the construction activities and public transport.
The safety of all will be our primary concern therefore the action plan will be, to have barricades for total closure of road under construction and enough warning signs to inform the public of the road closure

Specifically, the following will be in place:

- Reflective empty drums or Concrete barricades.
- Road Safety Signage; warning and regulatory signs, Road closed signs
- Direction signing; To direct public to safe way road

4.1 COMPONENTS OF THE PLAN

4.1.1 Diversion road.

Diversion road will be constructed or use other existing road on realigned sections that will be closed and stopped from traffic during construction. Diversion road will give access to public road user and transportation of construction materials from/to the site. *(sketch diagram attached on Appendix VI)*
The signage will be placed at each side of the road and will be at a distance of 100m and 15m to diversion (Diversion 100m ahead, Diversion 15m). According to Traffic Signing Manual the signs to be used are those with code TR212, TR107, TR106 and TR211

4.1.1.1 Construction of diversion roads

In general, deviations will be constructed in compliance with the contract provisions. Since the proposed road works will be carried out in section, details of deviations for each section will be respectively submitted to the Engineer for approval before commencement of construction, which include:

- ❖ Route of Deviation

The route of deviations will be located within Right-Of-way of the proposed road as much as practicable. Where any deviation needs to pass through any area out of road reserve, the contractor will make proper arrangement with the owner(s) of properties. In case the Contractor fails in making proper arrangement with the owner(s) of properties, the contractor will refer the land issues to the Engineer for a solution.

- ❖ Width of Deviations

Width of any deviation will be 8m in total as specified with 6m wide passageway. Where in the opinion of the engineer, it is impracticable to provide a two-lane deviation, a single lane carriageway not less than 3.0 m wide with traffic control and passing places will be provided.

- ❖ Camber

2.5% camber will be applied to the passageway of deviations; even it is not specified in specifications.

- ❖ Gradient

The gradient of any deviation will be less than 10% except with the express approval of the Engineer, and any acute intersection of gradient will be properly graded to a smooth vertical curve, to the satisfaction of the Engineer.

- ❖ Drainage

a) The Contractor will construct the necessary temporary drainage works such as side drains, catch water drains, mitre drains, culverts, etc to deal adequately with surface run- off. The temporary culverts of adequate type and size will be installed on existing drainage channels wherever required by the Engineer.
b) Drifts: Where a road is deviated to cross a large water course which is impracticable to bridge or culvert, a drift will be constructed of stones or small boulders with the intersections filled with spalls to make a firm bottom. This pitching shall be carried up the banks of the watercourse above the flood level of the stream. The dimension of the drift shall be such that there is less than 0.15 m of water over the road at all times, except in flood. The edge of the drift will be defined with posts or other markers and a gauge installed to indicate the maximum depth of water over the road. The minimum width of the drift will be 3.5 m.

- ❖ Earthworks for Deviations

The Contractor will shape and grade the deviations and shall make full use of all material that can be obtained from alongside the deviation, from side cuts or from the immediate vicinity. If an adequate quantity of material cannot be obtained in this manner, he will import material from other sources.

All material will be watered, mixed and compacted with suitable compaction equipment to give sufficient density to the material so that it will be capable of carrying traffic without undue wear or distress. In case of disagreement between the Engineer and the Contractor as to the adequacy of this compaction, dry density of 90% of BS-heavy density will be taken as the required minimum density.

- ❖ Wearing course:

100mm thick gravel material, or otherwise determined by the Engineer, will be laid to passageway of the deviations.

The Contractor will provide, spread, water mix and compact such material to a density where it can carry traffic without undue wear and tear. In case of disagreement between the Engineer and the contractor as to the adequacy of compaction, a dry density equal to 90% of BS-Heavy density will be taken as the required minimum density.

4.1.2 One-Lane traffic/ Half-Way Construction

In case that the natural terrain is too difficult to construct or find a deviation for public traffic use during the construction, and road section has low traffic volume e.g. Sido – Senga – Mafulala road then half-width construction method will be requested in writing for the engineer's approval. The half width construction method shall be kept to a minimum length (normally 250-300meters), and minimum width (normally 3mters).
Contractor will assign adequately trained flagmen depending on the length and traffic volume of specific construction site section to control traffic. Either Temporary Road traffic signage will be installed 200m to 100m approaching construction area According to Traffic Signing Manual be used are those with code TR212, TR107, TR106 and TR211. *sketch diagram attached on Appendix VI)*

4.1.3 Access road

Contractor will construct an access road that will be used for entrance and exit at borrow pit site, quarry site, contractor's camp and engineer's camp. Contractor will assign flagmen to control traffic and install temporary reflective road traffic signs, speed limit, Men at work and Heavy trucks turning. *(sketch diagram attached on Appendix VI)*

4.1.4 Road closed.

During construction contractor will close some road and introduce alternative route to accommodate public road user. Alternative route will have reflective direction signs from beginning to the joint point road. *(See sketch diagram attached on Appendix VI)*

4.1.4.1 Closure signage.

The reflective materials will be used for total closing of road being constructed. This will be done by using either painted empty drum or special concrete block barrier. According to Traffic Signing Manual the sign to be used is one with code TD4. The contractor will also have barricades for total closure of road under construction and enough warning signs to inform the public of the road closure

4.2 IMPORTANT SAFETY SIGNAGE TO BE USED

Safety signage will be prepared in Swahili and English languages and installed in all strategic areas to raise awareness to all employees and the public at large on the importance of complying with traffic flow plan and arrangements within and close to the construction sites. Important signage helps those directly involved in construction works and others aiming at harmonizing social interactions. Signage to be used will be (but not limited to): men at work, reduce speed, road under construction, speed limit 30Km/hour, Construction continues, AIDS kills, Heavy machines operating, be aware of the turning machines/trucks, be aware of large pits, deep excavation, keep left, No Entry, hazardous materials etc**.**

4.2.1 Speed Limit

Speed limits will be enforced for traffic movement within the construction sites and posted along the access and site roads. Contractor's team will be trained on safety matters including traffic protocols and speed limits during mandatory safety orientation. Routine traffic inspections and/or speed indicator signs will be used to encourage safe and responsible driving and ensure the management plan is adhered to as per country's laws and regulations. The number of traffic flows is similar during working hours from morning to evening. In the construction area, the speed limited will be between 20 to 30Km/hr.

4.3 FATALITY OR SERIOUS INJURY AT THE WORKSITE

In the case of serious injury or fatality occurring within the traffic control zone all work shall cease immediately, machinery and vehicles turned off and the area cleared of personnel as soon as possible. Traffic police (and other personnel if necessary) shall be deployed immediately to ensure no traffic or other road users approach the area. Emergency services shall be notified of the incident and all road workers and traffic management personnel shall preserve the scene leaving everything in situ, until direction is given by Police or any relevant authority. If it is determined that a road closure point is required, detour routes will be put in place. In the case of any incident/accident the health and safety officer will fill in an Accident Report Form so as to keep record and the form will be in the format provided in Appendix II.

5 HAZARD IDENTIFICATION AND RISK ASSESSMENT

The construction activities might pose different risks on the general safety of project staff and other road users as well as the general public. In order to mitigate the risks, the potential risks and corresponding mitigation measures have been identified as highlighted in the table below;

S/N	Risk Activity	Consequence	Mitigation Measures
1.	A person being hit by a vehicle due to poor visibility	Injury to person	• Project vehicles to run with head lamps on for visibility • All personnel to wear high visibility vests with retro-reflective strips • All project activities to take place within daylight hours unless otherwise as instructed by the project manager
2.	Road users not paying attention to traffic signs and management arrangements	• Injury to road users • Destruction of property	• Traffic management and control mechanism to be set up as per this TMP • Traffic arrangements to be evaluated routinely for effectiveness • Advance warning signs to be displayed to warn users on road closures • Regular inspections to be performed by traffic supervisor to ensure all signs are properly standing, operational and clearly visible to motorists and other road users
3	No detour route provided	• Congestion and time wastage • Unnecessary inconveniences	A proper detour has to be identified well in advance of the intended closure
4	Irregular parking near construction site might decrease the visibility of warning signs	• Injury to pedestrians • Destruction of property	• The optimum location for installing project signs shall be determined on site by the traffic supervisor • Signs are to be positioned for maximum visibility
5	Footpath closure / detour	• Inconvenience to pedestrians and residents along route; • Disconnection of	• Provision of warning and informative signage prior to and during the closure; • Provision of pedestrian crossings and refuges or controlled crossing

S/N	Risk Activity	Consequence	Mitigation Measures
		access to bus stops	points; • Provision of barricades on the approaches to the closure to prevent public access and visibility to activities within the site
6	Property access closures	• Inconvenience to residents and businesses along route.	• Provision of wooden-plate crossings into properties where feasible and safe; • Provision of information to affected residents and businesses in advance of works in the area. • Provision of temporary access culvert or access covered where needed for motorized access.
6	Signage being disrupted or removed by members of the public striking a pedestrian	• Injury to pedestrians • Destruction of properties • Drivers being unaware of the road closures • Cars entering restricted areas	• Regular monitoring of signage and devices by traffic management personnel; • Appropriate signs erected, including road closure and barricades to ensure road users are aware of the requirements to follow directions.
7	• Overturned/toppled over HGV. • HGV stuck in mud due to skidding or section of the road being impassable. • Vehicle breakdowns on project road.	• Reduced visibility for other motorists. • Obstruction of other road users thus increasing traffic jams.	• Providing towing/pulling services subject to owner's consent. • Providing appropriate temporary traffic control measures e.g. flagmen and appropriate signage until the situation is remedied allowing free flow of traffic.
8	• Accidents due to collisions, rolling over, etc.	• Obstruction of other road users thus increasing traffic jams	• Liaising with the traffic police department to assess the site situation for recording and offering assistance if called upon.

6 IMPLEMENTATION OF THE PLAN

6.1 HAZARD IDENTIFICATION, ASSESSMENT AND CONTROL

The Traffic manager will evaluate all traffic arrangements before opening the road for traffic and immediately after opening to traffic. Adjustments are to be made as required and recorded in the site diary, including reasons for the changes. The Traffic supervisor will also be required to evaluate the traffic arrangements where site conditions change. New hazards that arise throughout the event will be subject to risk assessment and incorporated onto the Risk Register.

6.2 TRAFFIC CONTROL AND MANAGEMENT

In order to control traffic, project activities will not commence until all signs, devices or barricades are in place and operational in accordance with the requirements of the TMP. The number, type and location of signs, devices and barricades shall be of standard (see Appendix I) for a schedule of signs to be used for controlling traffic). The control of traffic along the project site is designed to include closed-lanes where there will be temporary lane closure and traffic will be channeled to a single lane section that will be at least 3.0m wide. There will also be road-blocks where divergence routes/detours will be developed to guide and channel the traffic through an alternative path/route past the project site.

6.3 TRAFFIC CONTROL PROGRAM

6.3.1 Training

Road Safety Engineer and the Traffic Manager shall schedule programs for workers who will be engaged in traffic control activities and ensure that there is participation and quality improvement from the training to be conducted and their records to be maintained. Each person whose actions affect maintenance, construction, utility, and incident management – from the upper-level management personnel through field personnel – will receive training in traffic control appropriate to on-the-job decisions each individual is required to make.

Two different trainings will be dispensed depending of the worker's position.

1- Basic induction training for all workers on the road: they must get skills to protect themselves from accident and to have a safe behaviour on the road. This training will last 30 minutes of theoretical skills and practical exercise (see annex V).

2- Intensive training for traffic control team: they must get skills to implement, check and correct the traffic control devices, according to this TMP and depending of the situation on site. This training will last 1 hour with half time dedicated to practical situations.

Therefore, every week will be organized tool box meeting about safety issues. Most of them will talk about traffic control, working on the road, wearing protective clothes and to remind regularly to all workers the safety rules to apply to prevent accident.

Those sensitizations are done by foremen with the assistance of HSE department in case of need (see annex VI).

6.4 TRAFFIC CONTROL EQUIPMENT

Traffic control devices/equipment shall be used and erected in accordance with this plan and flag men will be located on strategic points. Before daily project activities commence, signs and devices (signs, cones, and barriers) will be checked and tested.
Traffic control signs shall be delineated at all strategic points where they will be visible to all road users, whereby cones and barriers are to be erected in accordance with this plan, and all signs shall be at least 425mm high, fluorescent red and fitted with Class 1 retro-reflective tape and spaced in accordance with standards.
All permanent traffic signs shall be covered where temporary signs and markers are used.

6.5 ACCESS ROAD TO PARTICULAR AREAS

Several temporary accesses are opened for the need of the project like:

- Access to Contractor's and Engineers Camp
- Access to Rock Quarry; and
- Access to Borrow pit.

The entry of the temporary access road is wide enough so that two trucks can cross without causing congestion to either the main road or the temporary access road.

Warning sign boards are installed at 50m distance from road junctions to warn road users about movement of heavy trucks to and from borrow pits, quarry sites, stone crusher site, dump sites, Engineer's and Contractor's camps.

6.6 IMPLEMENTATION ARRANGEMENT

The Traffic Manager will work closely with the Site Manager and Site Foreman who will be responsible for ensuring implementation of the plan. The traffic officer from the Construction Supervision Consultant (CSC) will be responsible for supervision in order to ensure project activities comply with the plan. All grievances related to the project will be dealt with by Contractor's general grievance redress mechanism.

6.7 TIPS FOR WORKING NEAR ROADS

- Work shall be executed while facing oncoming traffic
- No loading or unloading from the live side of traffic.
- Use of vehicles and mobile equipment equipped with warning devices when backing up.

- Controlling the release of dust that may reduce the visibility by periodically spraying the area with water.
- Ensuring that vehicles are highly visible by marking their rear side with retro reflective tape.
- Parking vehicles and equipment outside the pedestrian route.
- Inspecting the site daily to ensure that signs, cones and other signaling equipment are placed in the right position (visible), cannot be easily removed by people, cars or wind gusts and are kept in good condition.
- Ensuring that traffic control devices are removed or covered when no longer needed.
- When work is done, removing all traffic control equipment in reverse order than installed. Advance signs shall be removed last and only after all other devices have been removed.

7 TRAFFIC CONTROL ON CAMP SITE

7.1 DRIVING AROUND CAMP SITE

All traffic uses the routes as indicated on the CGC Camp Site Plan. The routes are kept clear at all times. No materials or equipment are stored/parked in the route areas.

Maximum speed limit on the road project is 60km/hr and 30Km/hr. in work areas. The maximum speed limit on the camp site is 20 km/hr.

The following traffic rules must be obeyed at all times:

- Beacon and headlamp must be on while driving
- Seat belt must be worn at all times
- Site traffic regulations must be obeyed.
- Back up alarms must be instated on all trucks and heavy equipment.

7.2 TRUCK ENTERING AND LEAVING THE CAMP SITE

Private vehicles are not allowed inside the camp. All vehicles that are permitted to enter the camp are issued a "vehicle Pass" which must be placed on the dash board so it is visible at all times. All vehicles are logged on the security vehicle log.

All trucks entering the Camp site with aggregates, water, fuel, etc. must enter through back main gate.

Materials in the box body of tipper and dump trucks are properly loaded covered. Equipment and materials being transported on flatbed trucks and low boy are properly secured by chains or fabric strap of the required capacity.

7.3 PARKING ON SITE

No parking of private vehicles is allowed onsite.

7.3.1 Parking of Vehicles

Management, staff and visitor must park vehicles facing outwards at the site general car park.

7.3.2 Parking of Trucks and Construction Equipment

Trucks and construction vehicles are parked in close proximity to the entrance gate in order to reduce reversing

8 HAULAGE AND STORAGE OF CONSTRUCTION MATERIALS

8.1 8.1 ROCK

Rock shall be transported to the site of the permanent works along an approved route. The Contractor is:

1. Obtain the approval of the appropriate Authorities before using the public private road.

2. Avoid damage to public or private roads and is repair any damage that does occur.

3. Trucks used to transport rock for this Project shall be of a type specifically constructed for hauling rock and shall have tailboards or scow-ends. No other mode of rock transportation may be employed unless first approved by the Project Manager and the relevant Authorities.

8.2 BASE COURSE MATERIALS

The base course materials will be transported to the work area by tipper trucks and articulated tractor trailer tipper wagons

8.3 STOCKPILING OF MATERIALS

8.3.1 Rock

The Contractor may be permitted to stockpile rock at or near the site of the permanent works. Separate stockpiles shall be made for different grades of rock. The stockpiles shall be formed so that they do not constitute a hazard; the locations, side slopes and heights and other factors affecting safety shall be adhered to.

8.3.2 Base Course Materials

The stockpiles shall be formed so that they do not constitute a hazard; the locations, side slopes and heights and other factors affecting safety shall be as approved.

9 MONITORING AND REVIEW OF THE PLAN

In order to ensure that this TMP maintains and complies with acceptable standards, there will be opportunities for a review during project implementation to introduce new or improved procedures. This is to ensure that the plan is continuously improved.

9.1 SITE INSPECTIONS

The Traffic manager will ensure that the TMP is implemented and evaluated for effectiveness. Inspections shall be undertaken as required and at a minimum on the following occasions:

- Before the project activities commence
- During the project activities
- Closing down at the end of the project activities

The inspections will be used to identify repeated or significant incidents that occur during project implementation and have not being addressed in the plan (see Appendix IV). Other avenues, which will be part of the review process, will include toolbox meetings, site meetings, site inspections and progress meetings.

9.2 RECORD KEEPING

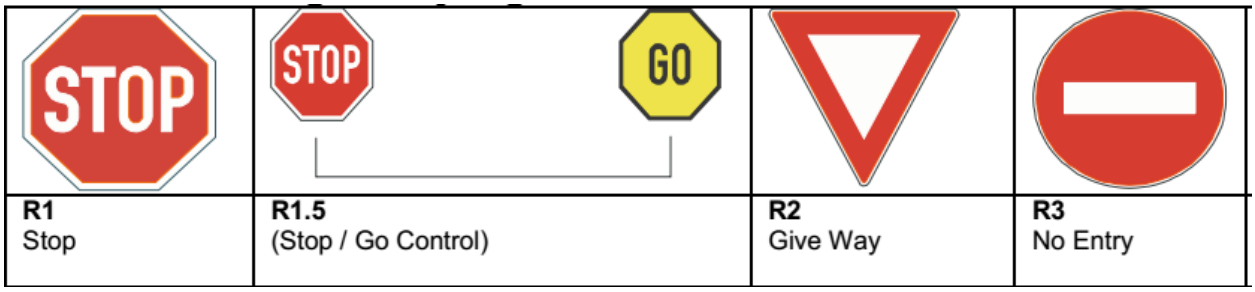
A daily record of the inspections should be kept indicating:

- When traffic controls were erected;
- When changes to controls occurred and why the changes were undertaken
- Any significant incidents or observations associated with the traffic controls and their impacts on road users or adjacent properties

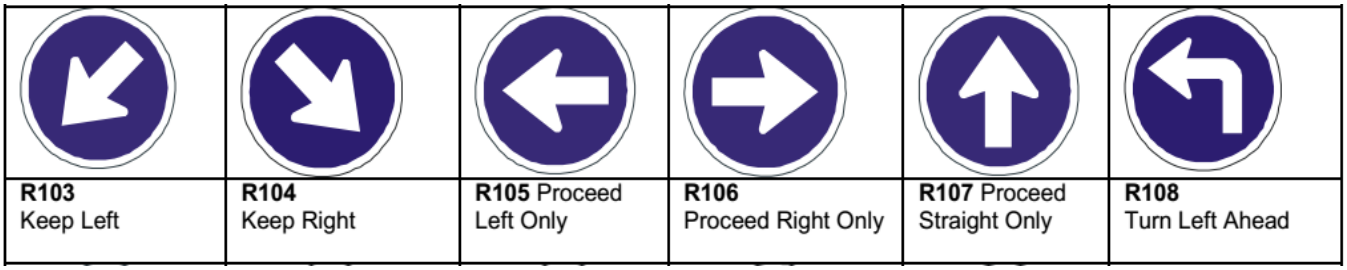
Where significant changes to the traffic environment or adverse impacts are observed, the controls will be reviewed with some urgency. Daily Inspection Sheets shall be completed by the person undertaking the inspections. All variations to the TMP, incidents and accidents shall be recorded.

APPENDICES

APPENDIX I: SCHEDULE OF TRAFFIC SIGNS



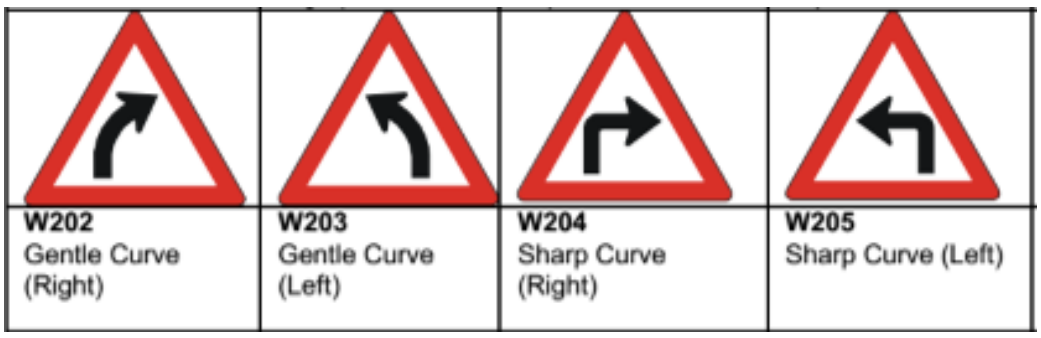
R1 Stop	R1.5 (Stop / Go Control)	R2 Give Way	R3 No Entry



R103 Keep Left	R104 Keep Right	R105 Proceed Left Only	R106 Proceed Right Only	R107 Proceed Straight Only	R108 Turn Left Ahead

R109 Turn Right Ahead	R216 No Parking	R217 No Stopping

R209 No Left Turn Ahead	R210 No Right Turn Ahead	R211 No Left Turn	R212 No Right Turn	R213 No U-turn	R214 No Overtaking



W202 Gentle Curve (Right)	W203 Gentle Curve (Left)	W204 Sharp Curve (Right)	W205 Sharp Curve (Left)

		
TW336 Roadworks	**TW338** Loose Stones	**W339** General Warning

Road narrows both sides

Road narrows one side

Road narrows one side

Narrow bridge

Children

APPENDIX II: ACCIDENT/INCIDENT REPORT FORMART

中国地质工程集团公司

China Geo-Engineering Corporation

Upgrading of Central Business District (CBD) roads in Sumbawanga Municipality-TACTIC project

ACCIDENT REPORT (RIPOTI YA AJALI)

INFORMATION TYPE (AINA YA TAARIFA)	**INCIDENT SUMMARY (MAELEZO YA TUKIO KWA UFUPI)**
Title (Mada)	Accident Report (Ripoti ya ajali)
Type of Incident (Aina ya tukio)	Road traffic accident (Ajali ya barabarani)
The Vehicle/Machine/Equipment involved (include registration number) (Gari/ mashine/Kifaa vilivyo husika (pamoja na namba za usajili))	
Name of Driver (s) (Jina la dereva)	
Date (Tarehe)	
Time (Muda)	
Location (Eneo)	
Description of the incident (Maelezo ya tukio)	
Investigation found (Matokeo ya uchunguzi)	
Damage to property (Uharibifu wa mali)	
Fatality (Kifo)	
Injuries (Majeraha)	
Witness of Accident (Shahidi wa ajali)	
Action Taken (Hatua zilizo chukuliwa)	
Recommendations to avoid future occurrence (Mapendekezo ya kuzuia kutokea badae)	

ANNEX III: ROAD SITE TRAFFIC SAFETY INSPECTION CHECKLIST

Contractor:		**Date:**	
Location:		**Time:**	

No.	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
01	**House Keeping**				
	Are access/exit routes unobstructed and clear of tripping hazard?				
	Are toilets around site: clean and free of hazard?				
	Are lifting equipment adequate in areas?				
	Are materials stored properly?				
	Rubbish containers available, adequate & colour coded?				
	Are surplus materials stored in site?				
	Is the site free from sharp/pointed objects such as nails?				
02	**Tools**				
	Are all hand tools in safe working condition?				
	Are tools properly stored?				
03	**Electrical Equipment**				
	Are all electrical and control panels secured and accessible?				
	Are electrical shock posters sited?				
	Electrical equipment properly earthed?				
	Are portable grinder guarded?				
	Are all rotating tools protected?				
04	**Machinery and equipment**				
	Are there valid certificates				

No.	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
	for mobile equipment?				
	Are all rotating equipment and drive belts protected?				
	Are qualified and experienced operators used on site?				
05	**Lifting equipment**				
	Are lifting equipment comply with current colour code?				
	Are there valid certificates for lifting equipment?				
	Are qualified and experienced operators used onsite?				
06	**Compressed Gases**				
	Are all welding gas cylinders capped, marked and stored properly?				
	Are gas cylinders secured properly?				
	Are empty gas cylinders isolated?				
07	**Personal Protective equipment (PPE).**				
	Are proper PPE identified/provided?				
	Are PPEs maintained in a good condition?				
	Are adequately PPE Stock?				
	Are PPEs complying with acceptable standard?				
	Are personnel know the use of PPE?				
08	**Excavation**				
	Are excavated materials away from the road edge?				
	Are there safe accesses to the excavation?				
	Are there sufficient hazards warning signs?				
09	**Firefighting Equipment**				
	Are fire extinguishers readily accessible and				

No.	Categories of Items under inspection	Previous inspection status	Present inspection status	Action required	Remarks
	clearly identified?				
	Are fire extinguishers in good working condition?				
10	**First Aid Equipment**				
	Are first aid stations identified?				
	Are the first aid boxes adequately stoked?				
	Are eye wash bottle available, in date and good order?				
11.	**Emergency**				
	Are assembly points identified?				
	Are people aware of emergency procedure?				
	Are there more than one exit from area?				
	Are there sufficient direction and information signs?				
12	**Personnel welfare**				
	Is sufficient drinking water available for use at site?				
	Are adequate rest shelters provided at site?				
	Are the toilet facilities provided on site?				
	Is dust suppression practiced onsite?				

For Contractor : ……. For Engineer : ……..

Date : ……. Date : ……..

ANNEX IV: TOOL BOX MEETING

TOOL BOX MEETING			
Project: Upgrading of Central Business District (CBD) roads in Sumbawanga Municipality-TACTIC project Document: TMP		Location:	
Date:	Time:	Conducted By:	
Duration:		Signature:	
MAIN TOPIC DISCUSSED:			

SN.	**Name**	**Designation**	**Roll No**	**Signature**

Site Engineer/ Supervisor: **Project Manager:**

ANNEX V: TRAFFIC INDUCTION TRAINING

CGC	**Induction Training**			
Project: Upgrading of Central Business District (CBD) roads in Sumbawanga Municipality-TACTIC project Document: TMP		Location:		
Date:	Time:	Conducted By:		
Duration:		Signature:		
	Main Topic Discussed: Scope of the work, personal protective equipment, toolbox meeting, personal hygiene, Heat stress, defensive driving, safe operation of heavy equipment, working at height, safe rigging and slinging, first aid , Safe loading and unloading, resting at site, working with machinery, manual handling, electric tool, welding and cutting, use of fire extinguisher as per the class of fire, reporting of accidents and incidents, reporting of near miss, use of scaffolding,			
SN.	Name	Designation	Roll No	Signature

Road Safety Engineer/ HSE Officer: **Project Manager**

APPENDIX VI: TYPICAL SCHEMATIC DRAWINGS OF TRAFFIC MANAGEMENT PLAN