Lot 3 Annuity Road Project for Modogashe-Habasweini-Samatar Road

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1 INTRODUCTION

1.1 Project background information

The government of Kenya (GOK) through its road agency, Kenya National Highways Authority (KeNHA) has embarked on a pivotal infrastructure project to improve the 76.62 km Modogashe- Habasweini-Samatar road to bitumen standard. The project is located in Mandera County and it is under the LOT 3 annuity project which also includes the improvement of the Rhamu-Mandera road. The road is a section of the B9 road that runs from Modogashe town through Habasweini, Lagh Boghol, Leheley, Wajir, Elwak, Rhamu to Mandera town in North-Eastern Kenya. Table 1:1 elaborate in detail the start-off point and the end point of the Modogashe-Habasweini-Samatar Road.

Table 1:1: The start off and end point of the Modogashe-Habasweini-Samatar Road

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<th>Latitude</th>
<th>Longitude</th>
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<td>Start</td>
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<td>0°44'13.83&quot;N</td>
<td>39°10'21.61&quot;E</td>
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<td>Entry</td>
<td>Habasweini</td>
<td>1° 0'43.92&quot;N</td>
<td>39°29'10.71&quot;E</td>
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<td>Exit</td>
<td>Habasweini</td>
<td>1° 1'12.92&quot;N</td>
<td>39°29'59.43&quot;E</td>
</tr>
<tr>
<td>End</td>
<td>Samatar</td>
<td>1° 9'57.49&quot;N</td>
<td>39°41'21.64&quot;E</td>
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</table>

The agreed realignment route for the project is shown in figure 1.1 below.
1.2 Resettlement Action Plan

The agreed realignment route for the project has a 1.77 km road section running through Habasweini town that is proposed to have a reduced road reserve of 25 m therefore eliminating the need for relocation and compensation.

1.3 Overview of the Environmental Management Plans

Environmental and Social Impacts analysis of the Modogashe-Habasweini-Samatar road was carried out where several environmental and social impacts were identified and analysed. To minimise the effect of these impacts, mitigation measures were proposed which will act as a guide for their management. The Fifteen (15) management plans have been developed to act as a guide for the management of the identified impacts. This will enable the surrounding communities to accept the project with minimal resistance if the impacts will be successfully mitigated and managed. The 15 management plans include:

i. Atmospheric Emissions Management Plan
ii. Hazardous Substances Management Plan
iii. Spill Prevention and Countermeasures Management Plan
iv. Fire Risk Management Plan
v. Noise Management Plan
vi. Surface Water Management Plan
vii. Waste Management Plan
viii. Traffic Management Plan
ix. Biodiversity Management Plan
x. Occupational Health and Safety Management Plan
xi. Emergency Preparedness and Response Management Plan
xii. Labour Management Plan
xiii. Social Impacts Management Plan
xiv. Stakeholder Engagement Plan
xv. Grievance Mechanism

The management plans have been prepared in accordance with the applicable National legislations and International guidelines such as Equator Principles and IFC. The subsequent chapters discuss each of these plans into details.
1.4 Environmental policy

This ESMP will be implemented in line with the Service Provider Environmental Policy as the anchor for the management plans. The environmental policy highlights the commitment of the Service Provider to the laws, regulations, and other policy mechanisms concerning environmental issues. It further outlines aims and principles in relation to managing the environmental effects and aspects of various project operations.

1.5 Roles and Responsibilities

Each of the developed management plans has an outline on roles and responsibilities of various actors who will be involved on respective management plan implementation. The responsibilities lie across the Service Providers working closely with various government agencies. Some of the key agencies highlighted in the respective management plans include, NEMA, WRA, DOSH, County Government, KeNHA amongst others.
2 CHECKING AND CORRECTIVE ACTION

2.1 Monitoring
Mechanisms for monitoring the management plans will be put in place to monitor the implementation and effectiveness of management and mitigation measures, to assess the actual experienced impacts against the anticipated ones and demonstrate compliance to the applicable laws and regulations. These plans will be continuously updated depending on the arising impacts, both to the workers and the community along the proposed road project. The Service provider and KeNHA may carry out desktop or field-based inspections to monitor the implementation of the proposed mitigation measures. The specific monitoring mechanisms have been described in detail in each of the prepared management plans.

2.2 Inspections
The EHS Officers will conduct random and regular inspections at the different sections of the project i.e. campsites, quarries, offices, project related construction activities, and all movement of project related stores, personnel, materials and machinery/plant. These will be aimed at ensuring that the proposed mitigation measures and the recommendations in all the management plans are adhered to.

The NEMA county officials may also conduct random inspections as required under Environmental Management and Coordination (Impact Assessment and Audit) Regulations, 2003, Part V (38). The aim of these inspections is to examine records and to make enquiries on the project progress. A person who refuses to answer questions, refuses to avail documents or refuses to give other information legitimately sought by the inspector is liable for an offence. Therefore, all NEMA inspectors will require to be given access to relevant information requested.

2.3 Audits
The EHS officer for the Project shall take all practical measures to ensure the implementation of the management plans by carrying out internal monitoring (both internal and external) to assess the effectiveness of environmental controls, compliance with the ESMP and other relevant laws, regulations, and guidelines. The project initial audit will be carried out twelve months after the road operationalisation in order to assess the effectiveness of the ESMP implementation and formulate a basis for annual self-audits. The annual self-audits will be carried out at the end of every year. In addition, NEMA and County officials shall conduct control audits whenever the Authority and the County deems it necessary to check compliance with the environmental parameters set for the project or the project ESMP.

2.4 Implementation
Establishment of an Environmental, Health and Safety Office
The formulation of a comprehensive Environmental and Social Management Plan is a culmination of the ESIA process. In order to ensure the ESMP is fully implemented, the Service Provider should establish an Environmental, Health and Safety (EHS) office that will continuously advise on EHS components of the project implementation. Elements in the environmental and social management plan are expected to be integrated in the project with appropriate consultations with KeNHA through the supervising environmental and social expert.

The EHS officer of the Service Provider will also be expected to fully understand the engineering and management aspects of the project for effective coordination of relevant environmental issues listed in the Environmental and Social Management Plan.

Environment Supervisor
The environment supervisor should be appointed by KeNHA (as the project proponent) to ensure effective implementation of the ESMP. It is expected that the supervisor will engage the services of an environmental expert who should master all environmental recommendations and the proposed action plans, timeframes and expected targets. The environmental expert should be the liaison person between the Service Provider and the KeNHA on the implementation of environmental concerns as well as issues of social nature associated with the implementation of the project.

Environmental and Social Section (KeNHA)

KeNHA has an established Environmental and Social Management Department to facilitate compliance of road projects with the requirements of environmental laws and regulations. This office advises KeNHA projects on various compliance issues. The office also has established linkages with NEMA. Projects contracts should be reviewed by this office directly or through the environment supervisor. Regarding the implementation of the social and economic aspects of the ESMP, it is proposed that the Resident Engineer works closely with the Environmental and Social officer of KeNHA.
3 ATMOSPHERIC EMISSIONS MANAGEMENT PLAN

3.1 Introduction
The contactor of the Lot 3 Annuity Road Project for Modogashe-Habasweini-Samatar is required to ensure that emissions are produced/released during the construction, excavation, or any demolition works along the road. It is the role of the Service Provider to ensure that the project does not cause the release of harmful emissions into the atmosphere. The atmospheric emissions management plan (AEMP) is therefore designed to address impacts of atmospheric emissions from the road construction works. It applies to all employees and Service Provider of the road project and covers all areas within the project boundary.

Scope and Objectives of the AEMP
This AEMP covers and applies to all operational activities that have the potential to generate noise within the construction of Modogashe-Habasweini-Samatar road project. Key objectives include:

i. To facilitate compliance with the Environmental Management and Coordination (Air Quality) Regulations, 2014 and all relevant legislation
ii. To ensure that works are managed to minimise atmospheric emissions impacts on the community and the environment
iii. To detail specific atmospheric emissions and mitigation measures
iv. To outline the road project monitoring and reporting requirements related to atmospheric emissions; and
v. To provide clear definition of the roles and responsibilities for atmospheric emissions that apply to employees and Service Provider.

3.2 Statutory application
Key policies, laws and regulations that are applicable to Air emissions management in Kenya have been referenced in preparation of this AEMP. Some of these legislations include Environmental Management and Coordination Act (EMCA Cap 387); Environmental Management and Coordination (Air Quality) Regulations, 2014; Occupational Safety and Health Act, 2007 (OSHA); Public Health Act (Chapter 242); and Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines have been considered in the AEMP.

3.3 Key issues
In the construction phase, the excavations, demolitions, and transportation of building materials will result in the emissions of large amounts of dust within the project site and surrounding areas. The diversion of traffic in the construction phase will also contribute to dust emissions. The public also expressed concerns over possibility of generation of large amounts of dust within the project site and surrounding areas as a result of excavation works and transportation of building materials. The proponent will thus need to ensure that dust levels at the site are minimized as much as possible through full implementation of the designed atmospheric emissions management plan. Additional mitigation measures on reduction of Greenhouse gases (GHGs) presented in this plan will need to be fully implemented for legal compliance and to minimize the impacts GHGs to the atmosphere.

3.4 Mitigation Measures
Air emissions prevention and mitigation measures will be applied where predicted or measured atmospheric emissions from the road project or operations exceed the applicable level guideline at the most sensitive point of reception. Atmospheric emissions are monitored through regular air quality assessments. These emissions can be classified into; point sources
(discrete, stationary, identifiable) and fugitive sources (distributed spatially over a wide area and not confined to a specific discharge point), and mobile sources (from vehicles).

**Mitigating Green House Gases (GHG) / Atmospheric emissions from plants, vehicles, and equipment**

The measures outlined below will be employed to control GHGs emissions from plants, vehicles, and equipment.

i. Use sulphur free fuel for the plants, vehicles and generator

ii. Sensitize drivers of construction vehicles and machinery operators to switch off engines or machinery that are not being used

iii. Drivers to drive at low speeds to minimize fuel combustion

iv. Ensure that all vehicles and construction machinery are maintained on a regular basis to avoid release of harmful atmospheric emissions

v. Service Provider to ensure that the vehicles are fitted with emissions control devices, such as catalytic converters

vi. Discourage plant operators and drivers of construction vehicles from unnecessary revving and idling.

vii. Limit construction traffic movement and operations to the most necessary activities through adequate planning.

viii. Sensitize construction drivers and machinery operators to switch off engines when not being used.

ix. Ensuring that the construction machines, equipment and vehicles have the requisite inspection certificate.

x. Control the speed of the traffic movement by through adequate policing and monitoring.

**Mitigating dust**

The most common pollutant involved in fugitive emissions is dust or particulate matter (PM). This is released during certain operations, such as transport and open storage of solid materials, and from exposed soil surfaces, including unpaved roads. Measures for prevention and control of dust will include;

i. Covering of piles of excavated soil to reduce blowing by the wind

ii. Regular watering/sprinkling of water to suppress the dust and soil from being blown by the wind including the access roads and diversion tracks.

iii. Sensitize drivers to drive at lower speeds on unpaved roads to minimize dust generation

iv. Diversion roads to be covered by gravel to reduce generation of dust

v. Maintenance of the unpaved road surfaces to preserve surface characteristics (e.g. texture and roughness)

vi. The construction materials and those in the camp storage facilities should be stacked in a way that minimises accumulation of dust

vii. Add suitable soil stabilizers on access roads or pave access roads to control dust

viii. Erection of dust screens around buildings under construction especially at the workers’ camps.

ix. Dust control measures should be adopted at concrete batching plants, providing adequate PPE to staffs, canopying loading points and erecting dust screens around the plant

x. Collecting storm water and use to de-dust the construction site and the all-weather access roads if volumes stored are enough.

xi. Dust control mechanisms at the gravel borrow sites through extraction in wet conditions and transport in covered trucks.

xii. Implement dust control measures at the quarry sites and aggregate crushing sites.

3.5 **Responsibilities**

The Service Provider is responsible for implementation of the atmospheric and emissions management plan with KeNHA offering the supervisory role for compliance purposes. This should be done as guided by NEMA and in line with requirements of Air Quality, 2014 regulations.

3.6 **Timeline**

The implementation of the Atmospheric Emissions Monitoring and Management Plan is envisioned to be continuous and in specific throughout the construction period. The frequency of monitoring should be quarterly with annual reporting as guided by the Air Quality, 2014 regulations.

3.7 **Monitoring and Reporting**

Atmospheric emissions monitoring will be carried out for the purposes of establishing the existing ambient emissions levels in the area of the proposed road project during the construction. The parameters set out in this subsection will be monitored as prescribed in the Air Quality, 2014 regulations. Quarterly records / reports are supposed to be submitted to the Authority (NEMA) for monitoring compliance. Any major incidences of air emissions within the project area must be reported to the authority as required.

**Atmospheric emissions level guidelines**

Atmospheric emissions impacts should not exceed the levels presented in this subsection. The subsections highlights guidelines as set out in the Environmental Management and Coordination (Air Quality) Regulations, 2014.

**Ambient Air Quality Tolerance limits**

The air quality highlighted in below will apply to controlled areas such Hot mix asphalt batching plants, Incinerators, campsite and management offices, and the open environment around the road works close to the communities. These limits are outlined in the First Schedule of EMCA, Air Quality Regulations, (2014).

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Time Weighted Average</th>
<th>Residential, Rural &amp; Other area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Sulphur oxides (SO\textsubscript{x});</td>
<td></td>
<td>60 g/m\textsuperscript{3}</td>
</tr>
<tr>
<td></td>
<td>Annual Average*</td>
<td>80 g/m\textsuperscript{3}</td>
</tr>
<tr>
<td></td>
<td>24 hours**</td>
<td>0.019 ppm/50 g/m\textsuperscript{3}</td>
</tr>
<tr>
<td></td>
<td>Annual Average</td>
<td>0.048 ppm/125 g/m\textsuperscript{3}</td>
</tr>
<tr>
<td></td>
<td>Month Average</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 Hours</td>
<td>Instant Peak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 g/m\textsuperscript{3}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Instant Peak (10 min)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.191 ppm</td>
</tr>
<tr>
<td>Pollutant</td>
<td>Time Weighted Average</td>
<td>Residential, Rural &amp; Other area</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>2 Oxides of Nitrogen (NOₓ);</td>
<td>Annual Average*</td>
<td>60 g/m³</td>
</tr>
<tr>
<td></td>
<td>24 hours**</td>
<td>80 g/m³</td>
</tr>
<tr>
<td></td>
<td>8 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual Average</td>
<td>0.2 ppm</td>
</tr>
<tr>
<td></td>
<td>Month Average</td>
<td>0.3 ppm</td>
</tr>
<tr>
<td></td>
<td>24 Hours</td>
<td>0.4 ppm</td>
</tr>
<tr>
<td></td>
<td>One Hour</td>
<td>0.8 ppm</td>
</tr>
<tr>
<td></td>
<td>Instant Peak</td>
<td>1.4 ppm</td>
</tr>
<tr>
<td>3 Nitrogen Dioxide</td>
<td>Annual Average</td>
<td>0.05 ppm</td>
</tr>
<tr>
<td></td>
<td>Month Average</td>
<td>0.08 ppm</td>
</tr>
<tr>
<td></td>
<td>24 Hours</td>
<td>0.1 ppm</td>
</tr>
<tr>
<td></td>
<td>One Hour</td>
<td>0.2 ppm</td>
</tr>
<tr>
<td></td>
<td>Instant Peak</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td>4 Suspended Particulate Matter (SPM)</td>
<td>Annual Average*</td>
<td>140 g/m³</td>
</tr>
<tr>
<td></td>
<td>24 hours**</td>
<td>200 g/m³</td>
</tr>
<tr>
<td></td>
<td>Annual Average****</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>24 hours***</td>
<td>180</td>
</tr>
<tr>
<td>5 Respirable Particulate Matter (&lt;10 m)</td>
<td>Annual Average*</td>
<td>50 g/m³</td>
</tr>
<tr>
<td>(RPM)</td>
<td>24 hours**</td>
<td>100 g/Nm³</td>
</tr>
<tr>
<td>6 Lead (Pb)</td>
<td>Annual Average*</td>
<td>0.75 g/Nm³</td>
</tr>
<tr>
<td></td>
<td>24 hours**</td>
<td>1.00 g/m³</td>
</tr>
<tr>
<td></td>
<td>Month Average</td>
<td>2.5</td>
</tr>
<tr>
<td>7 Carbon monoxide (CO)/ carbon dioxide (CO₂)</td>
<td>8 hours**</td>
<td>2.0 mg/m³</td>
</tr>
<tr>
<td></td>
<td>1 hour</td>
<td>4.0 mg/m³</td>
</tr>
</tbody>
</table>
### Modogashe-Habasweini-Samatar Management and Mitigation Plans

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Time Weighted Average</th>
<th>Residential, Rural &amp; Other area</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Ozone</td>
<td>1-Hour</td>
<td>0.12 ppm</td>
</tr>
<tr>
<td></td>
<td>8 hour (instant Peak)</td>
<td>1.25 ppm</td>
</tr>
</tbody>
</table>

**Note:** µg - microgram, m³ - cubic metre, ppm – Parts per million, ppb – Parts per billion

* 24-hour limit may not be exceeded more than three times in one year;
** 24-hour limit may not be exceeded more than three times in one year micrograms/m³
*** Not to be exceeded more than once per year average concentration

***In conversion of units from ppm to mg/m³ and vice versa shall use guidelines set out under Part II of the Fifth Schedule of the Air Quality Regulations, 2014.
4 HAZARDOUS MATERIALS MANAGEMENT PLAN

4.1 Introduction
The contractor of the Lot 3 Annuity Road Project for Modogashe-Habasweini-Samatar Road has developed a Hazardous Materials Management Plan (HMMP) to promote environmental compliance by reducing the quantity, volume, and toxicity of hazardous materials. Hazardous material includes any physical, biological, or chemical item, which has the potential to cause harm to living organisms or the environment. Examples include chemicals that are toxic, corrosive, flammable, highly reactive, explosive, and/or emit ionizing radiation. It is anticipated that the construction of the road project will lead to production of waste and use of materials likely to be hazardous if not properly managed. Some of these products include paint materials. The Hazardous Material Management Plan is designed to be applied in conjunction with relevant applicable regulations, policies and guidelines developments for the project.

Scope and Objectives of the Hazardous Material Management Plan
The HMMP covers and applies to all operational activities that are likely to use, store, or handle any quantity of hazardous materials for the construction of Modogashe-Habasweini-Samatar road project. The overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. The key objectives include;

i. To facilitate compliance with the Environmental Management and Coordination Act (EMCA Cap 387) and all relevant legislation
ii. To ensure that works are managed to minimise adverse impacts on the community and the environment
iii. To detail hazardous material management and preventive measures
iv. The protection of the workforce and the prevention and control of releases and accidents

4.2 Statutory application
There are key policies, laws and regulations that are applicable to Hazardous materials management in Kenya. Some of the relevant regulations include; Environmental Management and Coordination Act (EMCA Cap 387); Environmental Management and Co-ordination (Waste Management Regulations, 2006); Environmental Management and Co-ordination (Controlled Substances) Regulations, 2007; Occupational Safety and Health Act, 2007 (OSHA); The Public Health Act; Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines have also been considered in the HMMP.

4.3 Key Issues
The road project is expected to use hazardous materials. Examples include chemicals that are toxic, corrosive, flammable, highly reactive, explosive, and/or emit ionizing radiation. Some of these include Paints; Degreasers; Hydraulic, transmission and engine oil (new and used); Assorted lubricants; Refrigerants; Petrol; Diesel, oil Drilling chemicals; Amine oil (product de-dusting agent); and Hydrogen peroxide (used for drilling).

In most cases, hazardous materials are frequently transported and stored in bulk presenting a potential risk of release to the environment in the event of accidents or leaks. The spills could also be as a result of accidental spillages from handling / usage or leakages. Further, some materials in use such as paint, tar are likely to spill during application hence the need for a hazardous material management plan.
4.4 Mitigation Measures

The HMMP mitigation measures has been addressed by integrating prevention and control measures, management actions, and procedures into day-to-day project activities. Key aspects for mitigation that are discussed include: hazard assessment, management actions, preventive measures and control measures.

a) Hazard Assessment

The level of risk should be established through an on-going assessment process based on:

- The types and amounts of hazardous materials present in the road project. This information should be recorded in a summary table with the following information:
  - Name and description (e.g. composition of a mixture) of the Hazard
  - Classification (e.g. code, class or division) of the Hazard
  - Internationally accepted regulatory reporting threshold
  - Quantity
  - Characteristic(s) (e.g. flammability, toxicity)
  - Analysis of potential spill and release scenarios using available industry statistics on spills and accidents where available
  - Analysis of the potential for uncontrolled reactions such as fire and explosions
  - Analysis of potential consequences based on the physical-geographical characteristics of the project site, including aspects such as its distance to settlements, water resources, and other environmentally sensitive areas

Hazard assessment should be performed by specialized professionals using internationally-accepted methodologies such as Hazardous Operations Analysis (HAZOP), Failure Mode and Effects Analysis (FMEA), and Hazard Identification (HAZID)

b) Management Actions

The management actions to be included in a Hazardous Materials Management Plan should be commensurate with the level of potential risks associated with the production, handling, storage, and use of hazardous materials.

Release Prevention and Control Planning

Where there is risk of a spill of uncontrolled hazardous materials, a spill control, prevention, and countermeasure plan should be prepared. The plan should be tailored to the hazards associated with the project, and include:

- Training of operators on release prevention, including drills specific to hazardous materials as part of emergency preparedness response training
- Implementation of inspection programs to maintain the mechanical integrity and operability of pressure vessels, tanks, piping systems, relief and vent valve systems, containment infrastructure, emergency shutdown systems, controls and pumps, and associated process equipment
- Preparation of written Standard Operating Procedures (SOPs) for filling Underground Storage Tanks (USTs), Above the ground Storage Tanks (ASTs) or other containers or equipment as well as for transfer operations by personnel trained in the safe transfer and filling of the hazardous material, and in spill prevention and response
- SOPs for the management of secondary containment structures, specifically the removal of any accumulated fluid, such as rainfall, to ensure that the intent of the system is not accidentally or wilfully defeated
- Identification of locations of hazardous materials and associated activities on an emergency plan site map
- Documentation of availability of specific personal protective equipment and training needed to respond to an emergency
Documentation of availability of spill response equipment sufficient to handle at least initial stages of a spill and a list of external resources for equipment and personnel, if necessary, to supplement internal resources

Description of response activities in the event of a spill, release, or other chemical emergency including:

- Internal and external notification procedures
- Specific responsibilities of individuals or groups
- Decision process for assessing severity of the release, and determining appropriate actions
- Facility evacuation routes
- Post-event activities such as clean-up and disposal, incident investigation, employee re-entry, and restoration of spill response equipment.

**Occupational Health and Safety**

Effective mitigation measures for the Hazardous Materials Management Plan should be done inline with the essential elements of occupational health and safety management plan including:

- **Job safety analysis** to identify specific potential occupational hazards
- **Hazard communication and training programs** to prepare workers to recognize and respond to workplace chemical hazards. Programs should include aspects of hazard identification, safe operating and materials handling procedures, safe work practices, basic emergency procedures, and special hazards unique to their jobs
- **Training** should incorporate information from Material Safety Data Sheets (MSDSs) for hazardous materials being handled. MSDSs should be readily accessible to employees in their local language. MSD sheets associated with each of these hazardous materials / chemicals should be made available with each consignment, and MSDS sheets for all such hazardous materials / chemicals should be clearly displayed in each hazardous materials / chemical store.
- **Definition and implementation of permitted maintenance activities**, such as hot work or confined space entries
- **Provision of suitable personal protection equipment (PPE)** (footwear, masks, protective clothing and goggles in appropriate areas), emergency eyewash and shower stations, ventilation systems, and sanitary facilities
- **Monitoring and record-keeping activities**, including audit procedures designed to verify and record the effectiveness of prevention and control of exposure to occupational hazards, and maintaining accident and incident investigation reports.

**Process Knowledge and Documentation**

The HHMP acknowledges that there are other various elements such as written process safety parameters i.e. hazard of the chemical substances, safety equipment specifications, safe operation ranges for temperature, pressure, and other applicable parameters, which should be adhered to. In essence, written operating procedures for any of the hazardous materials should be prioritised.

c) **Preventive Measures**

**Hazardous Materials Transfer**

Uncontrolled releases of hazardous materials may result from small cumulative events, or from more significant equipment failure associated with events such as manual or mechanical transfer between storage systems or process equipment. The following are recommended practices to prevent hazardous material releases from processes include:
- Use of dedicated fittings, pipes, and hoses specific to materials in tanks (e.g., all acids use one type of connection, all caustics use another), and maintaining procedures to prevent addition of hazardous materials to incorrect tanks
- Use of transfer equipment that is compatible and suitable for the characteristics of the materials transferred and designed to ensure safe transfer
- Regular inspection, maintenance and repair of fittings, pipes and hoses
- Provision of secondary containment, drip trays or other overflow and drip containment measures, for hazardous materials containers at connection points or other possible overflow points.

**Overfill Protection**

Overfills of vessels and tanks should be prevented as they are among the most common causes of spills resulting in soil and water contamination, and among the easiest to prevent. Recommended overfill protection measures include:

- Prepare written procedures for transfer operations that includes a checklist of measures to follow during filling operations and the use of filling operators trained in these procedures
- Installation of gauges on tanks to measure volume inside
- Use of dripless hose connections for vehicle tank and fixed connections with storage tanks
- Provision of automatic fill shutoff valves on storage tanks to prevent overfilling
- Use of a catch basin around the fill pipe to collect spills
- Use of piping connections with automatic overfill protection (float valve)
- Pumping less volume than available capacity into the tank or vessel by ordering less material than its available capacity
- Provision of overfill or over pressure vents that allow controlled release to a capture point

**Reaction, Fire, and Explosion Prevention**

Reactive, flammable, and explosive materials should also be managed to avoid uncontrolled reactions or conditions resulting in fire or explosion. Recommended prevention practices include:

- Storage of incompatible materials (acids, bases, flammables, oxidizers, reactive chemicals) in separate areas, and with containment facilities separating material storage areas
- Provision of material-specific storage for extremely hazardous or reactive materials
- Use of flame arresting devices on vents from flammable storage containers
- Provision of grounding and lightning protection for tank farms, transfer stations, and other equipment that handles flammable materials
- Selection of materials of construction compatible with products stored for all parts of storage and delivery systems, and avoiding reuse of tanks for different products without checking material compatibility
- Storage of hazardous materials in an area of the facility separated from the main production works. Where proximity is unavoidable, physical separation should be provided using structures designed to prevent fire, explosion, spill, and other emergency situations from affecting facility operations
- Prohibition of all sources of ignition from areas near flammable storage tanks

d) **Control Measures**

**Secondary Containment (Liquids)**

A critical aspect for controlling accidental releases of liquid hazardous materials during storage and transfer is the provision of secondary containment. Appropriate secondary containment structures consist of berms, dikes, or walls capable of containing the larger of 110 percent of the largest tank or 25% percent of the combined tank volumes in areas with above-ground tanks. Other secondary containment measures that should be applied depending on site-specific conditions include:
Transfer of hazardous materials from vehicle tanks to storage in areas with surfaces sufficiently impervious to avoid loss to the environment and sloped to a collection or a containment structure.

Where it is not practical to provide permanent, dedicated containment structures for transfer operations, one or more alternative forms of spill containment should be provided, such as portable drain covers, automatic shut-off valves on storm water basins, or shut off valves.

Storage of drummed hazardous materials with a total volume equal or greater than 1,000 liters in areas with impervious surfaces that are sloped or bermed to contain a minimum of 25 percent of the total storage volume.

Provision of secondary containment for components (tanks, pipes) of the hazardous material storage system, to the extent feasible.

Conducting periodic (e.g. daily or weekly) reconciliation of tank contents, and inspection of visible portions of tanks and piping for leaks.

Use of double-walled, composite, or specially coated storage and piping systems particularly in the use of underground storage tanks (USTs) and underground piping.

**Storage Tank and Piping Leak Detection**

Leak detection is especially important in situations where secondary containment is not feasible or practicable, such as in long pipe runs. Acceptable leak detection methods include:

- Use of automatic pressure loss detectors on pressurized or long-distance piping
- Use of approved or certified integrity testing methods on piping or tank systems, at regular intervals

### 4.5 Responsibilities

The Service provider is responsible for implementation of the Hazardous management plan with KeNHA offering the supervisory role for compliance purposes. Key other implementing partners include NEMA, WRA and DOSH who will play the monitoring role. This should be done as guided by the relevant legal requirements outlined by the plan.

### 4.6 Timeline

The implementation of the Hazardous Management Plan is expected to be continuous throughout the project period. The frequency of monitoring should be continuous with annual reporting a guided by the plan.

### 4.7 Monitoring and Reporting

Monitoring and record-keeping activities, including audit procedures will be used to verify and record the effectiveness of prevention and control of exposure to occupational hazards, and maintaining accident and incident investigation reports. This should be done through; management actions and application of preventive actions alongside Emergency Preparedness and Response and Community Involvement and Awareness.

#### a) Management Actions

**Management of Change:** These procedures should address the technical basis for changes in processes and operations. The impact of changes on health and safety and modification to operating procedures including authorization requirements, employees affected and training needs.

**Compliance Audit:** A compliance audit covering each element of the prevention measures (see below) should be conducted at least annually and should include:

- Preparation of a report of the findings
- Determination and documentation of the appropriate response to each finding
- Documentation that any deficiency has been corrected

**Incident Investigation:** An incident investigation mechanism should include procedures for:

- Initiation of the investigation promptly
- Summarizing the investigation in a report
- Addressing the report findings and recommendations
- A review of the report with staff and Service Provider

**Employee Participation:** A written plan of action should describe an active employee participation program for the prevention of accidents.

**Service Providers participation:** Service Provider should develop hazard materials management procedures that meet the requirements of the hazardous materials management plan. Their procedures should be consistent with those of the contracting company and the Service Provider workforce should undergo the same training. Additionally, procedures should require that Service Providers are:

- Provided with safety performance procedures and safety and hazard information
- Observe safety practices
- Act responsibly
- Have access to appropriate training for their employees
- Ensure that their employees know process hazards and applicable emergency actions
- Prepare and submit training records for their employees to the contracting company
- Inform their employees about the hazards presented by their work
- Assess trends of repeated similar incidents
- Develop and implement procedures to manage repeated similar incidents

**Training:** Project employees should be provided with training on hazard management. The training program should include:

- A list of employees to be trained
- Specific training objectives
- Mechanisms to achieve the objectives (i.e., hands-on workshops, videos, etc.)
- The means to determine whether the training program is effective
- Training procedures for new hires and refresher courses for existing employees

**b) Preventive Measures**

Preventive measures are meant to ensure that safety-related aspects of the process and equipment are considered, limits to be placed on the operations are well known, and accepted standards and codes are adopted, where they apply.

**Process Safety Information** Procedures should be prepared for each hazardous material and include:

- Compilation of Material Safety Data Sheets (MSDS)
- Identification of maximum intended inventories and safe upper/lower parameters
- Documentation of equipment specifications and of codes and standards used to design, build and operate the process
- Standard Operating Procedures: SOPs.

**Mechanical Integrity of process equipment, piping and instrumentation:** Inspection and maintenance procedures should be developed and documented to ensure mechanical integrity of equipment, piping, and instrumentation and prevent uncontrolled releases of hazardous materials from the project. Recommended aspects of the inspection and maintenance program include:

- Developing inspection and maintenance procedures
- Establishing a quality assurance plan for equipment, maintenance materials, and spare parts
- Conducting employee training on the inspection and maintenance procedures
- Conducting equipment, piping, and instrumentation inspections and maintenance
- Identifying and correcting identified deficiencies
\begin{itemize}
\item Evaluating the inspection and maintenance results
\item Reporting the results to management.
\end{itemize}

**Hot Work Permit**: Hot work operations – such as brazing, torch-cutting, grinding, soldering, and welding – are associated with potential health, safety, and property hazards resulting from the fumes, gases, sparks, and hot metal and radiant energy produced during hot work. Hot work permit is required for any operation involving open flames or producing heat and/or sparks. The section of SOPs on hot work should include the responsibility for hot work permitting, personal protection equipment (PPE), hot work procedures, personnel training, and recordkeeping.

**Pre-Start Review**: Procedures should be prepared to carry out pre-start reviews when a modification is significant enough to require a change in safety information under the management of change procedure. The procedures should:
\begin{itemize}
\item Confirm that the new or modified construction and/or equipment meet design specifications
\item Ensure that procedures for safety, operation, maintenance, and emergency are adequate
\item Include a process hazard assessment, and resolve or implement recommendations for new process
\item Ensure that training for all affected employees is being conducted
\end{itemize}

\section*{c) Emergency Preparedness and Response}
When handling hazardous materials, procedures and practices should be developed allowing for quick and efficient responses to accidents that could result in human injury or damage to the environment. The project Emergency Preparedness and Response Plan should be used alongside the HMMP.

\section*{d) Community Involvement and Awareness}
When hazardous materials are in use above threshold quantities, the management plan should include a system for community awareness, notification and involvement that should be commensurate with the potential risks identified for the project during the hazard assessment studies. This should include mechanisms for sharing the results of hazard and risk assessment studies in a timely, understandable and culturally sensitive manner with potentially affected communities that provides a means for public feedback. Community involvement activities should include:
\begin{itemize}
\item Availability of general information to the potentially affected community on the nature and extent of project operations, and the prevention and control measures in place to ensure no effects to human health
\item The potential for off-site effects to human health or the environment following an accident at planned or existing hazardous installations
\item Specific and timely information on appropriate behaviour and safety measures to be adopted in the event of an accident including practice drills in locations with higher risks
\item Access to information necessary to understand the nature of the possible effect of an accident and an opportunity to contribute effectively, as appropriate, to decisions concerning hazardous installations and the development of community emergency preparedness plans.
\end{itemize}
5 SPILL PREVENTION AND COUNTER MEASURES MANAGEMENT PLAN

5.1 Introduction

The contactor of the Lot 3 Annuity Road Project for Modogashe-Habasweini-Samatar Road has developed a Spill Prevention & Counter Measures Management Plan to promote environmental compliance by having in place measures to prevent and manage accidental spills of hazardous materials during the Project life cycle. Hazardous material envisioned by the plan includes any physical, biological, or chemical item, which has the potential to cause harm to living organisms or the environment. Examples include chemicals that are toxic, corrosive, flammable, highly reactive, explosive, and/or emit ionizing radiation.

Several management plans have been developed to address impacts identified in the Environmental and Social Impact Assessment (ESIA) report. The SPCMMP should be implemented as part of an environmental management system for the proposed road Project. Several activities associated with the Project (during the construction, operational and decommissioning/closure phases) require specific management to ensure that activities are appropriately controlled to prevent and mitigate unwanted outcomes. This SPCMMP has been developed to address the general requirements for management of unplanned spills of dangerous or hazardous materials.

Scope and Objectives of the Hazardous Material Management Plan

The SPCMMP covers and applies to all operational activities that are likely to use, store, or handle any quantity of hazardous materials for the road construction project. The SPCMMP aims to:

- To ensure compliance with the Environmental Management and Coordination Act (EMCA Cap 387) and all relevant legislation
- To establish a proactive hazard identification so as to prevent (or lower the likelihood) of spill events; and
- To formulate a response process and responsibilities for managing these situations, thus reducing likelihood and severity of inadequate management.

This SPCMMP is a conceptual document that will need to be reviewed and amended periodically in light of operational changes, learning experienced during its implementation. Specifically, this plan ties closely with the other management plans and hence should be used as part of the larger management system. Among key related plans include Hazardous materials management plan, the Waste Management Plan (WMP), and Emergency Response Plan (ERP).

5.2 Statutory Applications

This SPCMMP has been developed to compliment and refer to key policies, laws and regulations that are applicable to environmental protection and specifically management of hazardous substances. Some of the relevant regulations include: Environmental Management and Coordination Act (EMCA Cap 387); Environmental Management and Co-ordination (Waste Management Regulations, 2006); Environmental Management and Co-ordination (Controlled Substances) Regulations, 2007; Occupational Safety and Health Act, 2007 (OSHA); The Public Health Act; Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines and Performance Standards have also been considered in the plan.

5.3 Key issues

Hazardous materials are in most cases transported and stored in bulk presenting a potential risk of spill to the environment in the event of accidents or leaks. The spills could also be as a result of accidents from handling / usage or leakages. Further, some materials in use such as
paint, tar are likely to spill during application hence the need for a spill prevention and counter measures management plan.

A preliminary list of potentially hazardous materials/chemicals that will be used during all phases of the Project should be developed. These include: Waste water, including sewage; Paints; Degreasers; Hydraulic, transmission and engine oil (new and used); Assorted lubricants; Refrigerants; Petrol; Diesel oil Drilling chemicals; Amine oil (product de-dusting agent); and Hydrogen peroxide (used for drilling). MSD sheets associated with each of these hazardous materials / chemicals should be made available with each consignment, and MSDS sheets for all such hazardous materials / chemicals should be clearly displayed in each hazardous materials / chemical store. The measures to be taken in case of a spill for each, should be documented in the risk register.

5.4 Mitigation measures:

**Spill Risk Assessment**

Prior to the commencement of construction activities, the Service Provider shall undertake a spill risk assessment to establish high risk locations and activities. The risk assessment will identify measures to reduce associated risks to as low as reasonably practical. Site and activity specific response measures will be incorporated into Service Provider’s Spill Prevention and Response Plan. The risk of spills should at a minimum be evaluated based on –

- The likelihood of a spill occurring during handling and transfer methods;
- The presence of secondary containment;
- The state of the hazardous material/chemical product (solid/liquid);
- The preventative measures designed and in-place to prevent/contain spill events; and
- The potential impacts of a spill based on –
  - The toxicity of the hazardous material/chemical (obtained from the MSD sheets);
  - The potential for a spill to reach surface- and groundwater sources;
  - The potential volumes available for spills; and
  - The potential of a spill to affect human health.

Chemicals with a higher risk-rating will be evaluated to identify measures to reduce the risk through effective contaminant. The risk assessments will be updated as necessary to incorporate the changes throughout the project. The mitigation measures will also need to be updated as a result of the updated risk assessment; these will be incorporated into the Service Provider’s Spill Prevention and Response Plan.

**Site Map**

A site map of the project should be designed and developed based on locations of hazardous materials such as oil storage. The map should include the layout of property, boundaries, buildings, roads, locations of fixed storage for emergency generators and fuel tanks, chemical storage areas, compressed gas and the spill kit locations for spill clean-up supplies.

**Spill Hazard Identification**

The spill hazard identification study will include –

- Approximate storage volumes for all hazardous materials/chemicals;
- Identification of storage and transfer locations for the various hazardous materials/chemicals; and
- The environmental and social risks associated with each hazardous material/chemical. These are to be obtained from each material / chemical’s Material Safety Data Sheet (MSDS), which must be delivered with each hazardous material / chemical assignment.

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a) Spill Prevention Measures

**Hazardous Materials Transfer:** Uncontrolled spills of hazardous materials may result from small cumulative events, or from more significant equipment failure associated with events such as manual or mechanical transfer between storage systems or process equipment. The following are recommended practices to prevent hazardous material spills from processes:

- Use of dedicated fittings, pipes, and hoses specific to materials in tanks (e.g., all acids use one type of connection, all caustics use another), and maintaining procedures to prevent addition of hazardous materials to incorrect tanks.
- Use of transfer equipment that is compatible and suitable for the characteristics of the materials transferred and designed to ensure safe transfer.
- Regular inspection, maintenance and repair of fittings, pipes and hoses.
- Provision of secondary containment, drip trays or other overflow and drip containment measures, for hazardous materials containers at connection points or other possible overflow points.

**Overfill Protection:** Overfills of vessels and tanks should be prevented as they are among the most common causes of spills resulting in soil and water contamination, and among the easiest to prevent. Recommended overfill protection measures include:

- Prepare written procedures for transfer operations that includes a checklist of measures to follow during filling operations and the use of filling operators trained in these procedures.
- Installation of gauges on tanks to measure volume inside.
- Use of dripless hose connections for vehicle tank and fixed connections with storage tanks.
- Provision of automatic fill shutoff valves on storage tanks to prevent overfilling.
- Use of a catch basin around the fill pipe to collect spills.
- Use of piping connections with automatic overfill protection (float valve).
- Pumping less volume than available capacity into the tank or vessel by ordering less material than its available capacity.
- Provision of overfill or over pressure vents that allow controlled release to a capture point.

b) Spill Control Measures

**Secondary Containment (Liquids)** A critical aspect for controlling accidental spills of liquid hazardous materials during storage and transfer is the provision of secondary containment. Appropriate secondary containment structures consist of berms, dikes, or walls capable of containing the larger of 110 percent of the largest tank or 25 percent of the combined tank volumes in areas with above-ground tanks. Other secondary containment measures that should be applied depending on site-specific conditions include:

- Transfer of hazardous materials from vehicle tanks to storage in areas with surfaces sufficiently impervious to avoid loss to the environment and sloped to a collection or a containment structure.
- Where it is not practical to provide permanent, dedicated containment structures for transfer operations, one or more alternative forms of spill containment should be provided, such as portable drain covers, automatic shut-off valves on storm water basins, or shut off valves.
- Storage of drummed hazardous materials with a total volume equal or greater than 1,000 litres in areas with impervious surfaces that are sloped or berm'd to contain a minimum of 25 percent of the total storage volume.
- Provision of secondary containment for components (tanks, pipes) of the hazardous material storage system, to the extent feasible.
Conducting periodic (e.g. daily or weekly) reconciliation of tank contents, and inspection of visible portions of tanks and piping for leaks;

Use of double-walled, composite, or specially coated storage and piping systems particularly in the use of underground storage tanks (USTs) and underground piping.

**Storage Tank and Piping Leak Detection:** Leak detection is especially important in situations where secondary containment is not feasible or practicable, such as in long pipe runs. Acceptable leak detection methods include:

- Use of automatic pressure loss detectors on pressurized or long-distance piping
- Use of approved or certified integrity testing methods on piping or tank systems, at regular intervals

**c) Spill Countermeasures**

The following spill control and countermeasures will be followed in the event of a spill incident:

- Maintenance of updated emergency contact information list at all spill response kits locations (See emergency management plan)
- Maintenance of spill route maps (perceived overland flow path [flow gradient] and likely contamination point [i.e. surface water features, potable boreholes etc.] of a given contaminant substance) at potential spill locations
- Document availability of all spill response equipment that can handle a large spill. Document availability of specific personal protective equipment and the necessary training needed to respond to different potential spills.
- Maintenance of spill response kits on all Project fuel and lubrication sites and vehicles.
- Maintenance of spill response guidelines at all spill response kit locations.
- Maintenance of an up-to-date plan of the Project site showing the location of all contaminants, spill response kits and other response equipment.
- Maintenance of an updated table of all contaminants on-site and recommended spill response procedures.
- Development, implementation and regular training and testing of a facility-wide Spill Response Plan.
- First-aid training for all relevant personnel.
- All spills will be reported to appropriate management personnel.

**d) Spill Response Sub-Plans**

Site-specific spill response sub-plans will be developed by the Service Provider. These sub-plans will be developed and implemented for areas where large volumes of hazardous chemicals are stored. These sub-plans will address:

- Roles in the event of a spill including: spill coordinator (the person on the ground at the spill site, who is responsible for immediate actions taken to contain the spill, respond to immediate dangers, and notify necessary responders) and the rest of the personnel.
- Spill response equipment to be kept on site to contain spills
- Internal and external notification procedures.
- A communication system that will be followed during the spill, first response and clean-up and communication infrastructure required i.e. radios, telephone systems etc.
- Facility evacuation routes and procedures.
- Post-event activities such as clean-up and disposal, incident investigation, employee re-entry and restoration of spill-response equipment.
- Reporting requirements at the time of the spill and after the spill.
e) Transportation of Hazardous Materials and Chemicals

The transportation of certain substances (viz. diesel) presents the potential for spills due to traffic accidents or other accidents or incidents en-route to or from the Project site. Precautions that will be followed include:

- Service Providers will use transportation vehicles and tanks suitable for the materials and transportation routes used. These vehicles and tanks will be maintained in adequate condition to insure proper handling and safety of chemicals.
- Contracts involving chemical transportation will require compliance with applicable laws as well as Service Provider policies and procedures and will require responsible management of chemicals including emergency response and spill clean-up.
- Truck drivers will be required to notify the site of their departure time and arrival time and maintain a log of travel.
- All vehicles will be equipped with spill response kits appropriate to the materials being transported. The Service Provider will be required to maintain these in good condition and working order.
- Drivers will be trained in spill and emergency response and will have a means of communicating with the site, their administrative offices and emergency personnel for the entire transportation route.
- Up-to-date emergency contact information and monitoring sheets and manifests documenting the volume, phase and characteristics of the chemical being transported will be carried with each shipment.

f) Spill Emergency Procedures

In the event of a hazardous spill onsite, the project Emergency Preparedness and Response Plan should be used alongside the HMMP and the SPCMMP. In general, the following emergency procedures must be implemented:

- The Emergency Response Coordinator must be notified.
- Personnel in the immediate vicinity of the hazardous spill, including the designated Evacuation personnel must be immediately notified.
- The risk of explosion (if known) must be communicated to the Health and Safety Manager on site.
- Vehicle ignition or any power supply where the hazardous spill occurred must be immediately switched off.
- If possible, all drains and valves in the vicinity of the hazardous spill must be closed.
- The application and use of hazardous spill kits must be used ONLY by those trained to do so.
- The appropriate hazardous spill response and clean-up Service Provider must be notified and all contaminated material as a result of the spill must be suitably disposed of off-site.

5.5 Responsibilities

The Service provider is responsible for implementation of the SPCMMP, with KeNHA offering the supervisory role for compliance purposes. Key other implementing partners include NEMA, WRA and DOSH who will play the inspection and monitoring role. This should be done as guided by the relevant legal requirements outlined by the plan.

5.6 Timeline

The implementation of the SPCMMP, is expected to be continuous throughout the project period. The frequency of monitoring should be frequent with annual compliance audits to identify risks and gaps.
5.7 Monitoring and Reporting

Compliance Audit: A compliance audit covering each element of the prevention measures (see below) should be conducted at least on an annual basis and should include:

- Preparation of a report of the findings
- Determination and documentation of the appropriate response to each finding
- Documentation that any deficiency has been corrected

Incident Investigation: An incident investigation mechanism should include procedures for:
- Initiation of the investigation promptly;
- Summarising the investigation in a report;
- Addressing the report findings and recommendations;
- And a review of the report with staff and Service Providers.

Service Provider participation: Service Provider should develop spill prevention and counter measures management procedures that meet the requirements of the SPCMMP. Their procedures should be consistent with those of the contracting company and the Service Provider workforce should undergo the same training. Additionally, procedures should require that Service Providers are:
- Provided with safety performance procedures and safety and hazard information
- Observe safety practices
- Act responsibly
- Have access to appropriate training for their employees
- Ensure that their employees know process hazards and applicable emergency actions
- Prepare and submit training records for their employees to the contracting company
- Inform their employees about the hazards presented by their work
- Assess trends of repeated similar incidents
- Develop and implement procedures to manage repeated similar incidents

Training: Environmental and safety, spill response & counter measures plan and first aid training will be delivered to all relevant employees. Training will be provided by competent persons and environmental, health and safety staff as necessary. Key personnel will be identified to receive preliminary hazard analysis training. The training will be conducted on a regular basis. The frequency and timing of training is recommended to take place at least once a month. All relevant information in the SPCMMP (and the ERP and associated Emergency Evacuation Plan) will be communicated to employees and Service Providers. This information will include information on potential spill risks/threats for areas where large volumes of hazardous chemicals are stored, appropriate first-person response to spill incidents and notification procedures.

Key Performance Indicators: The following Key Performance Indicators (KPIs) are suggestions and can be measured and used to evaluate the Project’s performance with respect to its stated objectives and commitments:

- Monthly and annual volumes of materials transported and handled by the Project that could result in harm to human health or the environment in the event of an accident or spill;
- Monthly and annual number and volume of accidental small releases to the natural environment (including soils and water);
- Annual and monthly number of major spills occurring at the site of the Project;
- Number of hydrocarbon releases;
- Number of chemical releases;
- Number of other releases;
- Number of employees trained in spill response (compared to number of employees working with or around contaminants);
- Number of employees trained in first aid (compared to number of site personnel);
- Number of employees trained in the safe and environmentally sustainable handling of chemicals on-site (compared to number of employees working with or around contaminants).
6 FIRE RISK MANAGEMENT PLAN

6.1 Introduction

HCG recognises that fire is a major risk to the lives of its staff, sub-contractors and the community who live within the project area. The Service Provider will, therefore, ensure that fire safety is a priority in all areas under its control. This Plan is designed to provide information on how the Service Provider manages fire risks. This FRMP will be used in conjunction with the Emergency Preparedness and Response Plan prepared for this project.

Scope and objectives of the Fire Risk Management Plan

The Fire Risk Management Plan (FRMP) provides information for the controls to be implemented and steps that need to be undertaken to manage the Project’s Fire emergency response. The main objectives of the FRMP are:

- To ensure a comprehensive fire risk management process is applied across the Project activities aimed to minimize fire risk and to protect life and property.
- To ensure that fire safety problems that arise are quickly and effectively contained and resolved.
- To ensure that the Service Provider complies fully with its legal obligations in relation to fire safety.
- To ensure that appropriate training and information is provided on fire safety to Contactor’s staff.

Fire safety encompasses several aspects including:

- The methodology for carrying out fire safety risk audits.
- The design, installation and maintenance of fire safety systems to protect people and property from fire.
- The provision of fire safety awareness and training.
- The establishment and maintenance of a comprehensive Emergency Evacuation System.
- Bushfire planning and response procedures

6.2 Statutory Application

This Plan has been prepared to comply with both national and county legislative requirements. The key legal framework includes Fire Reduction Rules of 2007, and Occupational, Health and Safety Act 2007. In addition, it meets the requirements of Word bank and the Equator Principles Financial Institutions.

6.3 Key issues

As earlier noted, the road project is expected to handle hazardous materials some of which are highly flammable, highly reactive, explosive, and/or likely to emit ionizing which could result into outbreak of fires. Some of these flammable products include Paints; Degreasers; Hydraulic, transmission and engine oil (new and used); Assorted lubricants; Refrigerants; Petrol; Diesel, oil Drilling chemicals; Amine oil (product de-dusting agent); and Hydrogen peroxide (used for drilling).

Further, if vegetation growth is left unchecked or slash from routine maintenance is left to accumulate within the right-of-way, sufficient fuel can accumulate that may promote forest fires. Fires are globally known to impact on people, property and the environment leading to massive losses and even loss of lives. It is therefore important to have a fire safety plan to specify the planning, organisation, control, monitoring and review of the fire safety measures and fire safety provisions for the project.

Some of the key factors contributing to risk of fire include
 Unidentified Fire hazards which heightens the risk of fire and loss of property and life.
 Inappropriate storage of waste material which also heightens the risk of fire and loss of property and life.
 Staff not fully aware of fire issues resulting to incorrect action in the event of an emergency and unidentified fire hazards become a practical threat.
 Lack of Fire safety Marshalls leading to lack of fire response in designated areas particularly in emergency situations.
 Inappropriate storage of chemicals and flammable materials which could result to exposure to a high risk of fire.
 Lack of safety procedures in high risk areas such as laboratories and chemical stores resulting to Inability to reduce the risk of fire hazards and respond to emergency situations.
 In adequate or inappropriate fire protection measures in place such as alarms, extinguishers, sprinklers, etc.
 Bushfire Prevention and Preparedness

6.4 Mitigation Measures

Maintenance of Fire Systems and Associated Equipment: Maintenance of fire safety systems is carried out by a contracted fire service provider. The provisions of the contract ensure maintenance on fire systems and equipment is carried out in compliance with the Factories and Other Places of Work (Fire Risk Reduction Rules) of 2007 and the Occupational, Health and Safety regulations of 2007 and other associated legislation. The Service Provider will ensure that Fire Maintenance Service Providers are fully inducted for safe work practices at the Project site and are fully qualified to carry out maintenance on fire safety systems.

Fire Safety Inspection and Risk assessment: Fire risk assessments and inspections of the Project site are essential in identifying real and potential fire risks and hazards. The Project Site will be inspected annually by a contracted fire service provider who will provide a Fire Safety Audit Report. Annual Fire Safety Reports will include an assessment of Fire Risk which will be in accordance with the Service Provider’s Risk Management Policy. It will include assessment of the equipment within the Project site and the storage of materials and activities within the building. The fire safety audit should be conducted as guided by Factories and Other Places of Work (Fire Risk Reduction Rules) of 2007. Additionally, insurance companies may carry out risk assessment audits occasionally or carry out assessments as part of a larger program. Audit reports are to be reviewed jointly by management to determine required actions and funding allocations. Records of Annual Fire Safety Audits will be kept by the Health and Safety officer.

Fire Evacuation Drills: Fire evacuation drills will be carried out annually within the camp site. The purpose of these drills is to create awareness to the staff and community members on the evacuation procedures and to meet the Service Provider’s legal obligations. All evacuations will be conducted by Security Services with the assistance of the relevant OHS Manager to an annual schedule prepared by Health and Safety. Post de-briefing sessions will accompany each evacuation drill. Buildings and section of the Project site that are assessed by the OHS manager as a high fire safety risk may be required to undertake additional fire evacuation drills. Records of completed fire evacuation drills will be kept by the Health and Safety Office.

Fire Emergency Response: Automated fire alarm systems on the camp site will be monitored and responded to by the OHS Officer and Security Services. In the event of a fire alarm, staff will be evacuated as per the Emergency Preparedness and Response Management Plan. In the case of a fire where the alarm system has not been activated, Security Services are to be contacted with details of the location of the fire and details of any injuries and actions taken to evacuated. The emergency contacts are as per the Emergency Preparedness and Response Plan for the project. It should be noted that not all buildings will be fitted with automated fire alarms. If a fire occurs in a building which is not fitted with a fire alarm, Fire safety Marshalls / Team will need to raise the alarm verbally and ensure that all building occupants are notified.
Fire escape exits: Every workroom will be fitted with an emergency exit of at least 90 cm wide, situated as far away as possible from the ordinary exit, and located in a manner that the exit will not lead any person to a trap in the work place in the event of a fire breaking out. The staircase or ramp affording a means of escape in case of a fire will be adequately aerated, well-lit and of at least one metre width, provided that a spiral staircase shall not be considered as a suitable emergency exit. Further all fire exit door, gangway and exit staircases should be free of obstruction. The emergency should further be distinctively and conspicuously marked in green letters of at least 15 cm in height showing evacuation routes posted in prominent positions in the work place.

Formation of fire-fighting teams: The workplace will establish a fire-fighting team that shall consist of—

- at least two persons, where the number of workers is not more than ten;
- at least three persons, where the number of workers is between eleven and twenty-five;
- at least five persons, where the number of workers is more than twenty-five.

All workers will be trained and instructed in the safe use of fire-fighting appliances. A firefighting team should be formulated and attend a prescribed basic training course on fire safety by an approved institution for the training of the fire-fighting team. Further, every member of the firefighting team to undergo a fire-fighting refresher course at least once in every two years. A firefighting team shall carry out the following functions—

- ensure that all fire-fighting appliances, fire detection systems, fire alarm and any other facility for fire safety are in place and are regularly serviced;
- conduct fire drills at the workplace;
- investigate fire incidences at the workplace and recommend corrective measures;
- regularly inspect the workplace for purposes of identifying potential fire risks and recommend remedial measures;
- train other workers in the safe use of firefighting appliances;
- co-ordinate the evacuation of other workers in the event of a fire; and
- undertake any other functions as may be directed by the occupier.

Selection and distribution of fire extinguishers: The distribution and selection of fire extinguishers will be based on the classes of fire anticipated and the size and degree of hazard caused by a fire.

- Where a fire extinguisher is for the use of extinguishing Class A fires, every occupier shall ensure that the fire extinguisher is located as near as possible and not more than 10 metres from the hazard area.
- Where a fire extinguisher is for the use of extinguishing Class B fires, every occupier shall ensure that the extinguisher is located as near as possible and not more than 5 metres from the hazard area.
- Where a fire extinguisher is for the use of extinguishing Class C fires, every occupier shall ensure that the extinguisher is located as near as possible to all electrically energised equipment and not more than 10 metres from the hazard area.
- Where a fire extinguisher is for the use of extinguishing Class D fires, every occupier shall ensure that the extinguisher is located as near as possible and not more than 10 metres from the hazard area.

Water storage: The workplace should have access to water and water storage facility capable of storing at least 10,000 litres of water; the water storage facility is kept full at all times, for use in event of fire; the water pressure in the fire-fighting system is capable of raising water to the highest point of the workplace in the event of a fire; where hose reels are used and the storage water reservoir is at ground level or underground, an isolated water pump shall be provided.

Fire safety policy: The workplace will implement a written fire safety policy, and ensure all staff are informed on the contents of the policy which shall include—evacuation procedures;
provision for maintenance and inspection of fire-fighting appliances and fire detection systems; training of workers on fire extinguishing techniques; assignment of responsibility to individual persons within the organisation for fire prevention and control; planning and organisation of fire drills; and identification of assembly points.

**Bush Fire:** If vegetation growth is left unchecked or slash from routine maintenance is left to accumulate within the right-of-way, sufficient fuel can accumulate that may promote forest fires. Recommended measures to prevent and control risk of forest fire include:

- Monitoring of right-of-way vegetation according to fire risk;
- Removal of blow down and other high-hazard fuel accumulations;
- Trimming, slashing, and other maintenance activities to avoid seasons when the risk of forest fires is high;
- Removal of maintenance slash or management by controlled burning. Controlled burning should adhere to applicable burning regulations, fire suppression equipment requirements, and typically should be monitored;
- Planting and management of fire-resistant species (e.g. hardwoods) within, and adjacent to, rights-of-way.

### 6.5 Responsibilities

The following are responsible for the implementation and management of the control measures discussed in this Plan. This include the Service Provider assisted by the Fire Safety Team, Health and Safety Officer, and The Security Team. The Service Provider will work closely with respective government offices such as Directorate of Occupational Safety and Health, County Fire Department, and NEMA.

- OHS Manager - Endorse FRMP as a sub plan of the Emergency Management Plan.
- OHS officer and Fire Safety Team - Promote Project compliance with FRMP.
- OHS manager - Ensure the infrastructure design, installation and maintenance of Fire Systems is consistent with the Fire Reduction Rules of 2007, Occupational, Health and Safety Act 2007 and this FRMP.
- Head of Security - Responsible for ensuring appropriate response to emergencies.
- OHS manager - Ensure FRMP aligns with other plans and is reviewed as need arises.

### 6.6 Timeline

The implementation of the Fire risk management plan is expected to be continuous throughout the project period. The frequency of monitoring should be quarterly led by the fire safety team with annual compliance audits to identify risks and gaps.

### 6.7 Monitoring and Reporting

**Notification of Problems:** Fire safety Team and building occupants can assist the management of fire safety by reporting any issues or problems that they may identify. Generally, fire safety issues will be identified during routine maintenance and inspections by the Fire Safety Team.

**Incident Investigation or Identification of Fire Safety Risk:** In the event of an actual fire or the identification of a fire safety risk, the issue will be fully investigated by one or more of the following:

- Jointly by fire safety and OHS office.
- Other external assistance depending on the nature and extent of the problem.
- Insurance agency if a claim is lodged.

The Complaint/Incident Investigation report will be reviewed by all relevant stakeholders to agree a timely action plan to assess and address any gaps or deficiencies in the controls/measures in place to mitigate future fire risks. Responsibility for resolution of issues and completion of associated actions will be assigned.
Remediation of Issues: Most fire safety issues at Project site can be rectified by the OHS office. Depending on the extent of the problem and the associated risk, a Service Provider or other external organisation may be engaged to affect remedial action. Alternatively, if it is a safety issue involving building occupants, the problem may be managed at the source for example, through a change in work practices. If the issue is identified as requiring major refurbishment or asset replacement work, the final resolution will be prioritised and placed on a works program.
7 NOISE MANAGEMENT PLAN

7.1 Introduction
The contractor of the Lot 3 Annuity Road Project for Modogashe-Habasweini-Samatar Road is required to ensure that no excessive noise and vibrations are made during the construction, excavation, or any demolition works along the road. It is the role of the Service Provider to ensure, the project does not make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. The noise management plan (NMP) is therefore designed to address impacts of noise and vibrations from the road construction works. It applies to all employees and Service Providers of the Modogashe-Habasweini-Samatar road project and covers all areas within the project boundary.

Scope and Objectives of the NMP
This NMP covers and applies to all operational activities that have the potential to generate noise within the construction of Modogashe-Habasweini-Samatar road project. Key objectives include:

i. To facilitate compliance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 and all relevant legislation
ii. To ensure that works are managed to minimise adverse noise impacts on the community and the environment
iii. To detail specific noise management and mitigation measures for site personnel
iv. To outline the road project monitoring and reporting requirements related to noise; and
v. To provide clear definition of the roles and responsibilities for noise management that apply to employees and Service Providers.

7.2 Statutory applications
Key policies, laws and regulations that are applicable to Noise management in Kenya have been referenced in preparation of this NMP. Some of these legislations include Environmental Management and Coordination Act (EMCA Cap 387); Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009; Occupational Safety and Health Act, 2007 (OSHA); The Factories and other places of Work (Noise Prevention and Control), 2005; Public Health Act (Chapter 242); and Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines have been considered in the NMP.

7.3 Key issues
As a result of excavation, construction and demolition works, there will be high noise and vibration levels in the road project area. Noise and vibrations will emanate from transportation vehicles, construction machinery, metal grinding and cutting equipment, and among others. Excavation works will also cause vibration and noise.

7.4 Mitigation Measures
Prevention and Control: Noise prevention and mitigation measures will be applied where predicted or measured noise impacts from the road project or operations exceed the applicable noise level guideline at the most sensitive point of reception. The preferred method for controlling noise from stationary sources is to implement noise control measures at source. Methods for prevention and control of sources of noise emissions will depend on the source and proximity of receptors.
Mitigating Noise pollution from equipment

The measures outlined below will be employed to control noise levels from equipment.

i. Select equipment with lower sound power level and install silencers
ii. Install suitable mufflers on engine exhausts and compressor components
iii. Install acoustic enclosures for equipment casing radiating noise
iv. Improve the acoustic performance of constructed buildings, apply sound insulation
v. Noise barriers should be located as close to the source or to the receptor location to be effective.
vi. Limit hours of operation for specific pieces of equipment or operations, especially mobile sources through community areas
vii. Site permanent facilities away from community areas where possible
viii. Develop a mechanism to record and respond to complaints
ix. Taking advantage of the natural topography as a noise buffer during facility design
x. Reducing project traffic routing through community areas wherever possible

Mitigating Noise pollution and Excessive Vibrations from vehicles

Noise prevention from motor vehicles will be guided by the provisions of the legal notice no. 61, the environmental management and coordination (noise and excessive vibration pollution) (control) regulations, 2009 which notes that no person shall operate a motor vehicle which produces any loud and unusual sound; and exceeds 84 dB(A) when accelerating. Further no person shall at any time sound the horn or other warning device of a vehicle except when necessary to prevent an accident or an incident.

Measures to be employed will include:

i. Enforcement of Traffic Act regulations to ensure that all vehicles using the road are in good condition all the time to avoid excessive noise generation
ii. Installing speed control measures such as bumps and ramble strips in the villages and towns where the road traverses.
iii. Installing no hooting signs in sensitive areas such as near hospitals, schools, etc.
iv. Sensitize drivers of construction vehicles and machinery operators to switch off engines or machinery that are not being used.
v. Ensure that all vehicles and construction machinery are kept in good condition all the time to avoid excessive noise generation.

Mitigating Noise Pollution and Excessive Vibrations during mining and quarrying

Noise pollution and excessive vibrations at the mining and quarrying sites within the road project will be guided by the following:

i. Ensure that all workers wear ear muffs and other personal protective gear/equipment when working in noisy sections.
ii. Undertake loud noise and vibration level activities during off-peak hours during the day (i.e. between 8.00 am and 5.00 pm).
iii. Acquire Noise and Excessive Vibrations Pollution Control Permit and comply with conditions provided by the Environment Management and Coordination, Noise and Excessive Vibrations Pollution Control Regulations 2009.
iv. Support facilities such as hard rock quarries should adopt controlled blasting techniques, preventing flying rock debris and high intensity vibrations. The management should equally observe relevant explosives use and blasting permits provided by the Inspector of Mines and Geology.
Blasting activities along the road corridor and associated quarries should be done during the day and the public should be properly informed of the activity in time.

Noise Level Guidelines

Noise impacts should not exceed the levels presented in this subsection. The subsections highlights guidelines as set out in the Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009.

a) Maximum Permissible Intrusive Noise Levels

The noise levels highlighted below will apply to workers campsite and management offices. Measures should be employed to ensure that noise levels do not go beyond the levels highlighted below.

**Table 7.1: Maximum Permissible Intrusive Noise Levels**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Day (Leq, 14 h)</th>
<th>Day</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Silent Zone</td>
<td>35</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>B. Places of worship</td>
<td>40</td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>C. Residential: Indoor</td>
<td>45</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Outdoor</td>
<td>50</td>
<td>35</td>
<td>40</td>
</tr>
<tr>
<td>D. Mixed residential (with some commercial and places of entertainment)</td>
<td>55</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>E. Commercial</td>
<td>60</td>
<td>35</td>
<td>55</td>
</tr>
</tbody>
</table>

**Time Frame**

- Day: 6.01 a.m. – 8.00 p.m. (Leq, 14 h)
- Night: 8.01 p.m. – 6.00 a.m. (Leq, 10h)

b) Maximum Permissible Noise Levels for Construction Sites

The measurement for maximum permissible noise levels for the road constructions sites should be taken within the facility.

**Table 7.2 Maximum Permissible Noise Levels for Construction Sites**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Maximum Noise Level Permitted (Leq) in dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>Night</td>
</tr>
<tr>
<td>(i) Health facilities, educational institutions, homes for disabled etc.</td>
<td>60</td>
</tr>
</tbody>
</table>
(ii) Residential  60  35

(iii) Areas other prescribed in (i) and (ii)  75  65

Time Frame: Day:  6.01 a.m. – 6.00 p.m.  (Leq, 14h)
Night: 6.01 p.m. – 6.00 a.m.  (Leq, 14 h)

**c) Maximum Permissible Noise Levels for Mines and Quarries**

The road project is anticipated to produce noise levels from queries; the maximum permissible noise levels for mines and quarries will be guided by table below.

*Table 7.3 Maximum Permissible Noise Levels for Mines and Quarries*

<table>
<thead>
<tr>
<th>Facility</th>
<th>Limit Value in dB (C) Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>For any building used as a health facilities, educational institutions, convalescent home, old age home or residential building</td>
<td>109 dB (C)</td>
</tr>
<tr>
<td>For any building in an areas used for residential and one or more of the following purposes: commerce, small-scale production, entertainment, or any residential apartment in an area that is used for purposes of industry, commerce or small-scale production, or any building used for the purpose of industry, commerce or small-scale production.</td>
<td>114 dB (C)</td>
</tr>
</tbody>
</table>

7.5 **Responsibilities**

The Service Provider is responsible for implementation and management of the control measures discussed in this Plan. The Service Provider will be assisted by the Health and Safety Officer, and The Security Team. The Service Provider will work closely with respective government offices such as Directorate of Occupational Safety and Health, Respective County Government Departments and NEMA.

7.6 **Timeline**

The implementation of the Noise management plan is expected to be continuous throughout the project period. The frequency of monitoring should be quarterly led by the Environment, Health and Safety team with annual compliance audits to identify gaps.

7.7 **Monitoring and Reporting**

Noise monitoring will be carried out for the purposes of establishing the existing ambient noise levels in the area of the proposed road project, or for verifying operational phase noise levels. Noise monitoring programs should be designed and conducted by trained specialists. Typical monitoring periods should be sufficient for statistical analysis and may last 48 hours with the use of noise monitors that should be capable of logging data continuously over this time period, or hourly, or more frequently, as appropriate (or else cover differing time periods within several days, including weekday and weekend workdays). The type of acoustic indices recorded depends on the type of noise being monitored, as established by a noise expert. Monitors should
be located approximately 1.5 m above the ground and no closer than 3m to any reflecting surface (e.g., wall). In general, the noise level limit is represented by the background or ambient noise levels that would be present in the absence of the facility or noise source(s) under investigation. This data will also be used to identify any increasing noise levels associated with the works and establish mitigation measures.
8 SURFACE WATER MANAGEMENT PLAN

8.1 Introduction

This Surface Water Management Plan (SWMP) has been prepared to address and manage the impacts of the construction and operation of the Project on surface water. It provides a detailed water quality assessment and identifies the potential for direct and indirect impacts of the project on water quality and the corresponding environmental safeguards to manage those impacts. The purpose of this Plan is to describe how to manage and protect the water quality of the water resources during construction of the Project. The key objective of the SWMP is to ensure that impacts on water quality are minimized and within the scope permitted by NEMA. To achieve this objective, HCG Infra Limited will undertake the following:

- Ensure best management practice controls and procedures are implemented during construction activities to avoid or minimize erosion/sedimentation impacts and potential impacts to water quality in rivers, creeks and groundwater along the Project corridor
- Ensure appropriate measures are implemented to address the relevant NEMA Environmental Safeguards
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements

8.2 Statutory Application

Key policies, laws and regulations that are applicable Surface water management in Kenya have been referenced in preparation of this SWMP. Some of these legislations include Environmental Management and Coordination Act (EMCA Cap 387); Environmental Management and Coordination (Water Quality) Regulations, 2006; Environmental Management and Coordination (Wetlands, River Banks, Lake shores, and Sea shores) Regulations, 2009; Public Health Act (Chapter 242); and Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines have been considered in the SWMP.

8.3 Key Issues (Impacts)

The potential impacts on soil and surface water will be dependent on the nature, extent and magnitude of the construction activities and their interaction with the natural environment. Potential impacts attributable to construction include:

- Exposure of soils during vegetation clearing and earthworks, creating the potential for off-site transport of eroded sediments and pollutants;
- Alteration of surface and subsurface flows that could cause disturbances to hydrology and hydraulics;
  Contamination of soils, and surface and groundwater from accidental spills or oil leaks. This might include grease or fuel, metals (e.g. lead, zinc, copper, cadmium, chromium, and nickel), particulate matter and other pollutants released from machinery and vehicles on the road way and the release of nutrients and herbicides used for management of vegetation in the rights-of-way into surface water.
8.4 Mitigation Measures

A range of environmental control measures to manage the expected impacts of the project are identified as follows:

Minimize the risks of soil erosion

The following measures will be implemented to minimize the risks of soil erosion:

- Use of stormwater management practices that slow peak runoff flow, reduce sediment load, and increase infiltration, including vegetated swales (planted with salt-resistant vegetation); filter strips; terracing; check dams; detention ponds or basins; infiltration trenches; infiltration basins; and constructed wetlands;
- Regular inspection and maintenance of permanent erosion and runoff control features

Mitigating Soil and surface water contamination

The following will be undertaken to minimize soil and surface water contamination:

- Where significant oil and grease is expected, use oil / water separators in the treatment activities
- Reduce the amount of water used to control dust and use sweeping practices rather than washing.
- Use of proper staging techniques to reduce the spillage of paving materials during the repair of potholes and worn pavement. This may include covering storm drain inlets and manholes during paving operations;
- Using erosion and sediment control measures to decrease runoff from repair sites; and utilizing pollution prevention materials (e.g. drip pans and absorbent material on paving machines) to limit leaks and spills of paving materials and fluids.
- Avoiding the generation of contaminated runoff from cleaning of asphalt equipment by substituting diesel with vegetable oil as a release and cleaning agent; containing cleaning products and contaminated asphalt residues; scraping before cleaning; and conducting cleaning activities away from surface water features or drainage structures.

Minimizing the alteration of surface and subsurface water flows

This service provider will utilize the following approaches:

- Permanent catch drains will be installed behind cut faces to act as diversion drains during construction.
- Construction sediment basins will be utilized and would be designed to accommodate the rainfall event.

8.5 Responsibility

In general, the environmental manager will ensure continuous improvement of the Plan via an ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement. The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance;
- Determine the cause or causes of non-conformances and deficiencies;
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies;
- Verify the effectiveness of the corrective and preventative actions;
- Document any changes in procedures resulting from process improvement; and

Make comparisons with objectives and targets
The environment manager will then revise and update the plan if the water quality discharge criteria for the Project exceed the established threshold outlined by NEMA. Only the Environment Manager, has the authority to change any of the environmental management documentation. A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control.

8.6 Timeline

The implementation of the SWMP plan is expected to be continuous throughout the project period. The frequency of monitoring should be quarterly led by the environment manager with annual compliance audits to identify risks and gaps.

8.7 Monitoring and Reporting

Regular monitoring and inspections will be undertaken in the lead up to, during and following construction. Monitoring and inspections will include, but not be limited to:

- Up and downstream of the Project alignment water quality monitoring at nominated locations;
- Construction sediment basin water quality prior to discharge; and
- Weekly and post rainfall inspections to evaluate the effectiveness of erosion and sediment controls measures.

The type, assessment criteria and the sampling and analytical methods are listed in Table below. Reporting requirements and responsibilities are documented in the Surface Water Management

Table 8.1: Discharge water quality criteria

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Criteria</th>
<th>Sampling method</th>
<th>Analytical method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH*</td>
<td>6.5 – 8.5</td>
<td>Probe or Grab Sample</td>
<td>Field analysis and confirmed as required with laboratory assessment</td>
</tr>
<tr>
<td>Turbidity</td>
<td>TBA following correlation with TSS results</td>
<td>Grab Sample</td>
<td>Field analysis and confirmed as required with laboratory assessment, regularly updating correlations and having a factor of conservatism.</td>
</tr>
<tr>
<td>Total Suspended Solids*</td>
<td>50 mg/L</td>
<td>Grab Sample</td>
<td>Laboratory analysis</td>
</tr>
<tr>
<td>Oil and Grease*</td>
<td>No visible</td>
<td>Grab Sample</td>
<td>Field analysis and confirmed as required with laboratory assessment</td>
</tr>
</tbody>
</table>
9 WASTE MANAGEMENT PLAN

9.1 Introduction

This Waste Management Plan (WMP) has been prepared to address the impacts of construction in terms of waste generation and management. The various waste streams that would be generated during the construction of the Project, including construction and demolition waste, vegetation waste, packaging materials and liquid wastes are also identified. The key objective of the WMP is to ensure that waste for disposal and energy use are minimised. To achieve this objective, the developer will undertake the following:

- Ensure measures are identified and implemented to minimise waste and manage waste throughout the construction of the Project;
- Ensure the preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and finally disposal is followed;
- Provide staff with an increased level of understanding and awareness of waste and resource use management issues;
- Ensure appropriate measures are implemented to address the relevant NEMA Environmental Safeguards and Guidelines; and
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements.

The WMP should be read with the project Environmental and Social Impact Assessment study report, the construction Environmental Action Plan, the Environmental Monitoring Management Plan and the other Plans that are being prepared as part of the project.

9.2 Statutory Application

Key policies, laws and regulations that are applicable to waste management in Kenya have been referenced in preparation of this WMP. Some of these legislations include Environmental Management and Coordination Act (EMCA Cap 387); Environmental Management and Coordination (Waste) Regulations, 2009; Occupational Safety and Health Act, 2007 (OSHA); Public Health Act (Chapter 242); and Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines have been considered in the WMP.

9.3 Key issues

The following construction related waste streams have been identified:

- Demolition wastes from existing structures that require demolition e.g. bridges, pipe work, pavements and concrete pathways;
- Excavation wastes including excavated natural material (ENM), virgin excavated natural material (VENM) and contaminated soils;
- Vegetation from removal of shrubs and trees;
- Waste from illegal dumping which may occur during the Project;
- Packaging materials associated with items delivered to site such as pallets, crates, cartons, plastics and wrapping materials;
- Wastes produced from the maintenance of various heavy construction equipment including liquid hazardous wastes from cleaning, repairing and maintenance;
- Non-hazardous wastes would be generated using worker’s facilities such as toilets;
- Used spill kit materials and small quantities of contaminated soil from spillage and clean up works during construction; and
9.4 Mitigation and Management Measures

Waste handling and transportation will be handled in a manner that is consistent with the Environmental Management and Coordination Act (Waste regulations) 2006. The service provider will ensure that:

- the collection and transportation of such waste is conducted in a manner that will not cause scattering, escaping and/or flowing out of the waste;
- the vehicles and equipment for the transportation of waste are in a state that shall not cause the scattering of, escaping of, or flowing out of the waste or emitting of noxious smells from the waste;
- the vehicles for transportation and other means of conveyance of waste shall follow the scheduled routes approved by the Authority from the point of collection to the disposal site or plant; and
- he or his agent(s) possess at all times during transportation of the waste, a duly filled tracking document as set out in Form III of the First Schedule to these Regulations and shall produce the same on demand to any law enforcement officer.

Where waste cannot be avoided, reused or recycled it will be classified and appropriate disposal will then occur. The classification of waste is undertaken in accordance with the Environmental Management and Coordination Act (Waste regulations) 2006. This document identifies six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible) and describes a six-step process to classifying waste as shown in Table 9:1 below.
## Table 9.1: Management and mitigation measures of the various waste streams

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthworks</td>
<td>Surplus spoil</td>
<td>VENM/ENM</td>
<td>Re-use on site</td>
<td>100%</td>
<td>Environment manager/site engineer</td>
</tr>
<tr>
<td></td>
<td>Contaminated spoil</td>
<td>Special Hazardous</td>
<td>Onsite remediation</td>
<td>0%</td>
<td>Environment manager/site engineer</td>
</tr>
<tr>
<td>Clearing and grubbing</td>
<td>General solid waste (non-putrescible)</td>
<td>Vegetation</td>
<td>Use on site in erosion and sediment control and landscaping; Offsite use of merchantable timber; Offsite disposal.</td>
<td>100%</td>
<td>Environment manager/site engineer</td>
</tr>
<tr>
<td>Demolition</td>
<td>Concrete, Steel etc.</td>
<td>General solid waste (non-putrescible)</td>
<td>Crushed for use in access tracks on site</td>
<td>60%</td>
<td>Environment manager/site engineer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Disposal to steel recycler</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Disposal to concrete recycler</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dewatering</td>
<td>Waste Water</td>
<td>Liquid waste</td>
<td>Use on site as dust suppressant</td>
<td>20%</td>
<td>Environment manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Discharge offsite in accordance with Environment Protection License</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>Liquid Waste, Oils, lubes etc.</td>
<td>Liquid</td>
<td>Disposal off site to licensed facility</td>
<td>0%</td>
<td>Environment manager</td>
</tr>
<tr>
<td>Administration</td>
<td>Office Waste</td>
<td>General solid waste (non-putrescible)</td>
<td>Recycle paper/cardboard etc.</td>
<td>60%</td>
<td>Environment manager</td>
</tr>
<tr>
<td></td>
<td>Sewage</td>
<td></td>
<td>Pump out to licensed facility</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

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Waste Tracking

Consistent with the Environmental Management and Coordination Act (Waste regulations) 2006 the following wastes potentially encountered/generated are required to be tracked within the project site:

- Hazardous Wastes as defined by NEMA ‘Waste that must be tracked’ guidelines;
- Liquid Waste (Category 1 trackable waste);
- More than 100 kilograms of asbestos waste or more than 10 square meters of asbestos sheeting in any single load;
- More than 200kg of waste tyres, or 20 tyres (whichever is heavier);
- Waste oil/water, hydrocarbon/water mixtures or emulsions.

An online waste tracking system is recommended to be used to track asbestos waste and waste tyres all other trackable waste.

9.5 Responsibility

The environment manager will ensure all employees, contractors and utility staff working on site will undergo site induction training relating to waste and energy management issues. The induction training will address elements including:

- Existence and requirements of this Plan;
- Relevant legislation;
- Incident response, management and reporting;
- Waste reporting requirements;
- Requirements of the waste hierarchy;
- Waste/ recycle storage requirements;
- Potential for contaminated material (including asbestos containing material) to be present on site and management requirements for such material if identified;
- Energy efficient best practices; and
- Other specific responsibilities for waste and reuse management.

9.6 Timeline

The implementation of the waste management plan is expected to be continuous throughout the project period. The frequency of monitoring should be quarterly led by the Environment, Health and Safety team with annual compliance audits to identify gaps.

9.7 Monitoring and Reporting

Regular monitoring and inspections of waste generation and disposal will be undertaken during construction. Waste Avoidance and Resource Recovery reporting will be undertaken in accordance with EMCA (1999) waste regulations 2006, which includes the submission of the report to NEMA by 31st July each year, for the preceding year. Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement. The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance;
- Determine the cause or causes of non-conformances and deficiencies;
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies;
- Verify the effectiveness of the corrective and preventative actions;
- Document any changes in procedures resulting from process improvement
10 TRAFFIC MANAGEMENT PLAN

10.1 Introduction

This Traffic Management Plan (TMP) describes how HCG infra Ltd proposes to safely manage vehicular, cyclists and pedestrian traffic during the design and construction phase of the road Project, so that project objectives are fully realised. It is applicable to all staff, employees, subcontractors, and any statutory Service Authorities undertaking service relocations throughout the duration of the contract until project completion and its implementation and on-going development will be managed by the senior project team. The Plan applies to all parts of the construction of the Works. It does not apply to the maintenance of the road after opening to traffic. The scope includes:

- The provision for the safe movement of vehicular and pedestrian traffic
- The protection of workers from passing traffic
- The provision for access to properties located within the limits of the works
- The design, construction, maintenance and removal of any necessary temporary roadways and detours
- The provision of traffic controllers
- The installation of temporary signs, road markings, lighting and safety barriers

It also covers maintenance of the existing road corridor, including the existing road and road shoulder that may be used for the temporary diversion of traffic, over the duration of the works.

10.2 Statutory Application

Key policies, laws and regulations that are applicable to the Traffic management in Kenya have been referenced in preparation of this TMP. Some of these legislations include Environmental Management and Coordination Act (EMCA Cap 387); Environmental Management and Coordination (Air Quality) Regulations, 2014; Occupational Health and Safety Act, 2007 (OSHA); Public Health Act (Chapter 242); Traffic Act of 2013, and Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines have been considered in the TMP.

10.3 Key Issues.

The following risks will arise during the construction stage of the Project:

- Traffic delays causing frustration to drivers and passengers
- Potential community issues due to inadequate anticipation and communication of traffic issues causing dissatisfaction and frustration.
- Community dissatisfaction, claims for loss of trade, time delays
- Emergency vehicles and personnel unable to attend to an emergency.
- Impact on bus routes, commercial operations, disruption to business leading to frustration
- Traffic disruption or interference.
- Works in multiple areas across the Project may result in intermittent speed changes that may frustrate road users
- Potential disruption to pedestrians’ routes
- Poor public opinion and safety for workers if motorists start ignoring limits.
- Too many changed configurations.
- Public or livestock entering work-site.
- Dangerous entry and exits to sites and properties
- Seasonal traffic variations
10.4 Mitigation Measures

The roads affected by the construction of the Project vary greatly. However, the requirement remains the same as impacts in both cases must be kept to a minimum. Therefore, HCG will:

- Consider methods of construction at an early stage during the design stage to reflect community needs and reduce delay times therefore minimising the impact on traffic.
- Determine traffic routes and engage with community to refine details.
- Confirm pre-existing conditions and consider the need for night assessment.
- Identify any short-term corrective actions.
- Establish good public relations with the community from the outset.
- Erect Early Warning information signs through Variable Message Signs (VMS).
- Liaise with Emergency Services at an early stage to establish requirements and measures to be adopted in the Vehicle Movement Plan (VMP).
- Bus routes to remain unchanged where possible to avoid “changes” due to construction activities.
- Regular checking of Traffic Management Plan implementation.
- Have procedures in place for rapid recovery, keep locals informed.
- Simplification of traffic staging will simplify access arrangements or minimise impacts and avoid the construction zone impacting on traffic.
- From an early stage, ensure that pedestrian access provisions are adequately addressed, well established and maintained.
- Appropriate design of traffic protection measures, intersections, alignments etc. to allow consistent speed limits, i.e., 80km/h where-ever possible.
- Keep motorists on existing alignment for as long as possible. Effective use of VMSs for advanced notification and clear direction during any traffic flow adjustments.
- Design temporary break down bays and consider temporary verges where possible during design of traffic staging.
- Provide clear delineation and fencing.
- Educate community (farmers/neighbours, of Work Cover requirements etc.). "Neighbours induction". Channel interests through formally organised tours.
- Ensure that entries and exits are designed to cater for expected traffic volumes and with respect to sight distances, acceleration and deceleration provision and clear advanced warning signage.
- Consider seasonal volumes in programming works. Keep the service provider informed and up to date. Be aware of reporting and notification requirements.
- Implement effective community engagement strategies that will consider businesses, property owner’s requirements.
- Engagement of Traffic Steering Groups to liaise with local and regional cycle groups and commuters to ensure provision for cyclists is well addressed and notified to the community.
- Allow for heavy vehicle movements in traffic staging and planning to ensure existing, temporary alignment and pavements are suitable during the construction period.
- Carry out Road Dilapidation Surveys.

Monitor the road safety on ‘the Sand track’ during construction and Implement measures where reasonable and feasible, in consultation with the County government, should additional road safety issues be identified.
10.5 Responsibility

The project team is responsible for all construction activities, including the implementation and maintenance of the various temporary traffic management arrangements and have the qualifications depicted under ‘Traffic Controllers’ of this Plan.

HCG infra Ltd Projects Team organisational structure is appended to the Project Management Plan (PMP) and overall roles and responsibilities are outlined in both PMP and the CEMP.

Project Director
- Ensures the Project’s road safety and traffic management objectives are achieved;
- Ensures that all the incidents caused by site activity, and incidents on public roadway that are unrelated to the construction activity are reported; and
- Co-ordinating incidents to the police.

Project/Construction/Engineering Managers
The Project Engineering Managers are responsible for ensuring traffic management:
- Is properly planned, organised, directed and controlled;
- Is properly resourced with people, equipment, facilities and systems;
- Meets the requirements of the contract
- Complies with all other legislation; and
- Is achieving its objectives.

Project Superintendents
- Co-ordinates the field resources;
- Supports the delivery of the road safety and traffic management objectives;
- Assists with the implementation of the TMP
- Provides direction and support to enable effective planning of temporary traffic management arrangements;
- Ensures all field team members receive the appropriate training; and
- Managing all Emergency Controls as depicted in Incidents and Emergency Response Plan.

Traffic Manager
The nominated Traffic Manager will be required to have, as a minimum, Modify Traffic Control Plan (Red Card) qualifications and will be required to have the delegated authority from, and responsibility to the Project Managers for continuously monitoring the implementation and operation of all road occupancies to ensure that they are compliant including, but not limited to:
- Monitoring and quantifying the durations of delays to the free flow of traffic;
- Monitoring, measuring and recording traffic queue lengths, including the maximum traffic queue lengths in each direction and the total occupancy or stoppage time;
- Maintaining and adjusting traffic control measures and devices to assist prevailing traffic flows, minimise lane and shoulder occupancies and any lost traffic flow capacity and minimise traffic flow delay durations and queuing;
- Monitoring of over-dimension heavy vehicle movements;
- Prepare and keep records of all road occupancies and records of all traffic flow delays and durations, traffic queue lengths and other related matters and submit a report including copies
of those records to HCG infra Ltd by 9.00am on the Thursday following the week being recorded;

- The selection of any Traffic Control subcontractors;
- Ensuring that processes and control systems needed are established, implemented and maintained;
- Approving TCPs (where required) for individual tasks including those of subcontractors;
- Arranging and approving training;
- Ensuring that the requirements of all the plans are properly implemented;
- Regularly reviewing the continuing suitability, adequacy, and effectiveness, of all the plans;
- Preparing and submitting Hold Point Forms to Restrict applications 10 working days before the works are scheduled to begin;
- Allocation of all resources required for the implementation of all the plans;
- Ensuring that control measures are maintained, and that work-in-progress is inspected
- Identifying training needs and arranging for employees and subcontractors to attend the training;
- Ensuring subcontractors/suppliers have suitable qualifications and experience;
- Carrying out and recording weekly inspections and verifications to demonstrate compliance;
- Facilitating traffic awareness and giving toolbox talks to the site; and
- Reporting traffic incidents to the Project Director.

The Traffic Manager (or the delegates in his absence) will always be contactable (7 days per week and 24 hrs. per day) during the construction phase of the works to receive and answer traffic/incident related inquiries from HCG infra Ltd and the Police. Site Emergency contact list shall be in the Incident and Emergency Response Plan that will be displayed in the site office and the crib room. Refer to the Incident and Emergency Response Plan for details concerning the managing of incidents and emergencies on the project.

The Traffic manager will have the authority to stop work on any activity if it is necessary to prevent traffic incidents, or to comply with the directions of HCG infra Ltd or Police.

**Traffic Coordinator**

The Traffic Engineer will be required to be qualified to the “Traffic Control Worksite Manual” course (i.e. holds a current Select /Modify Traffic Control Plans) and will have delegated authority from, and responsibility to, the Traffic Manager for:

- Implementing the Traffic Management Plan and the TCPs on site
- Maintaining the TCPs
- Assessing and monitoring subcontractor’s capabilities and performance in respect of site activities
- Ensuring the safe passage of traffic always
- Ensuring everyone on site is inducted and wears the appropriate approved clothing
- Driving through the site to inspect the traffic control layout, recording any deficiencies and the action taken to rectify them
- Report incident including public roadway that are unrelated to the construction activity, near misses to Traffic Manager/ work, health and safety Manager.

**Foreman**

- Ensure compliance to the approved TCPs;
- Issues the required TCPs and, where relevant, road occupancy approvals and speed zone authorisations to the traffic control crew / or subcontractor;
- Ensures adequate plant, equipment and human resources are made available for
the installation and maintenance of temporary control devices;
- Conducts pre-start inspections and regular night / weekly inspections of traffic control arrangements, and ensure all deficiencies are rectified;
- Assist with the implementation of mitigation measures to address unsafe road conditions, and unusual traffic congestion;
- Assist with the management of unplanned incidents, providing initial response to make the site safe; and
- Records unplanned incident details, and when traffic controls are in operation, including the installation and removal of regulatory signage.

10.6 Timeline

HCG infra Ltd aims to meet its time related obligations. Among them are:
- Submitting TMP 60 days from date of the Project Deed or 4 weeks prior to the proposed commencement date for construction which affects traffic conditions;
- Submitting TCPs at least 10 business days prior to its proposed use;
- Notifying a day prior to opening temporary roadways and detours to traffic;
- Allowing 2 days after opening a temporary roadways or detour to traffic prior to disturbing sections of the existing roadway being placed to provide for the event where failure of the temporary roadway or detour occurs and there is a need to direct traffic back onto the existing roadway;
- Conduct a Road Safety Audit within 24 hours of or opening temporary roadways or detours.
- Submitting Road Safety Audit Reports within 7 days of implementation of the TCPs;
- Notifying emergency services and relevant sections of the community and transport industry of work which results in significant traffic disruption. Provide a draft of an appropriate advertisement 3 weeks before the proposed placement of the advertisement;
- Notifying residents and businesses affected by disruption to property access or by night works in built-up areas. A letter will:
  - be “letter-box-dropped” at least three Business Days before the proposed date
  - detail the dates and times of the proposed access restrictions and contact details
    - Performing work and Services only in the times permitted; and
    - Lodging early as possible (at worst no less than 10 Business Days before the work) a road occupancy application. Noting, however, the exemptions for emergencies and hazards;

The above-mentioned community notification is required to be done in accordance to the Community Communications Strategy (CCS).

10.7 Monitoring and Reporting

Specific responsibilities for the implementation of construction traffic management are detailed below. In addition, at least one of the site personnel is required to carry an Orange (Design and Inspect) licence for TCP.

Table 10.1: Key Review Areas (KRA)

<table>
<thead>
<tr>
<th>KRA</th>
<th>Target</th>
<th>Key Performance Indicators (KPI)</th>
</tr>
</thead>
</table>

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| Traffic Operations | • No unplanned impact on traffic flow due to works  
|                    | • Average travel times are maintained during peak periods  
|                    | • Provide a safe environment for road users and workers  
|                    | • Ensure impacts on road users are kept to a minimum  
|                    | • Ensure road users and the community are regularly informed about traffic changes  
| Number of Community complaints | • Record of internal and external traffic incidents  
| Travel time | Traffic Scores |
11 BIODIVERSITY MANAGEMENT PLAN

11.1 Introduction
The purpose of this Biodiversity Management Plan (BMP) is to act as an instrument to be used by HCG Infra Ltd to ensure that sound ecological management practices are incorporated during the Construction and Operational Phases of this Project. This BMP should be read in conjunction with the Project’s Environmental Impact Assessment (EIA), the Construction Environmental Action Plan (CEAP) together with other plans that are being prepared for the Project.

The objectives of the Plan include:

- Mitigation of negative impacts resulting from the Project.
- Enhancement of benefits that will arise from the development of the road project.
- Compliance with Kenyan legislation, lenders requirements, as well as international guidelines and best practice.
- Ongoing maintenance of goodwill and good relations with communities, civil society and the government, especially at the local and national level.

11.2 Statutory Application
Key policies, laws and regulations that are applicable to Biodiversity management in Kenya have been referenced in preparation of this BMP. Some of these legislations include Environmental Management and Coordination Act (EMCA Cap 387); Environmental Management and Coordination (Conservation of Biological Biodiversity and Resources, Access to Genetic Resources, and Benefit Sharing) Regulations, 2006; Water Act, 2016; Wildlife and Conservation Act 2013, Environmental Management and Coordination (Wetlands, River Banks, Lake shores and Sea Shores) Regulations, 2009; Public Health Act (Chapter 242); Forest Act 2005 and Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines have been considered in the BMP.

11.3 Key issues

a) Loss and disturbance of habitat
The project will reduce the area of natural habitat. Losses occur in areas permanently occupied by the road infrastructure and in areas mined for construction or maintenance materials. Temporary losses of habitat occur during construction, and disturbance occurs both during construction and operation. Levels of disturbance caused by traffic noise tend to be high and escalate with time, discouraging wildlife from heavily disturbed areas (up to 400 m on either side of roads in open habitat with high levels of traffic).

In the case of both habitat loss and disturbance, careful routing will reduce the negative impacts. Also, extra resources can be allocated to maintain or rehabilitate habitat, away from the construction sites, to offset lost and disturbed habitat. This ‘exchange’ of disturbed land for healthy habitat is and increasingly common practice but is very costly. In very sensitive areas, screening with trees or shrubs can help reduce disturbance, although roadside planting is seldom carried out in rural areas.

b) Barrier effects
This occurs when species are unable or unwilling to cross a transport route, which impedes gene flow within a population. The proposed project will act as a barrier, so bridges, tunnels and wildlife passes are important: for small species with low mobility; on known migration routes; or along access paths to feeding areas, watering holes or breeding sites. People can use the same constructions to reach important areas and traditional lands.

c) Habitat fragmentation and isolation
The project will separate natural habitats thereby rendering them smaller and become surrounded by an inhospitable landscape. In general, large continuous blocks contain more undisturbed habitat, and support more species, than an equivalent area of fragmented habitat blocks. Fragmented habitats have proportionally more edges exposed to disturbance, pollution and invasion by alien species.

d) Mortality
The project may give rise to mortality due to a variety of causes. Large numbers of mammals are commonly hunted near construction camps or maintenance facilities and are hunted/trapped wherever improved transport systems provide quicker access to wildlife habitats and markets. Collisions with vehicles can occur anywhere but are commoner where migration or access paths have been crossed by new roads. These collisions can be reduced using speed restrictions, road bumps, and a combination of wildlife passes and fencing. However, the practicality of introducing these measures needs careful assessment: speed limits may not be complied with; fencing may be too expensive or stolen. The Project will take these factors into account and focus on careful siting of transport routes as a preferred way of reducing mortality.

e) Pollution
The project will give rise to air, water and soil pollution due to (vehicular emissions, dust, soil (oil leaks) or water (road run-off or sumping). Atmospheric deposition of pollutants and soil contamination cause changes in vegetation along roads, railways and at airports. Adjacent to sensitive vegetation, particularly wetlands, contingency plans should be made to deal with spills or leaks.

f) Invasion of alien species
This is commonly associated with transport corridors, often unintentionally. Weeds disperse along roads and railways and parasitic, predatory or destructive organism along waterways. Settlement along transport corridors can result in domestic livestock competing with wildlife, spread of disease, or new crops displacing local varieties.

11.4 Mitigation Measures

Erosion and Sediment Control
Erosion and sedimentation issues may arise as the result of ground disturbance, vegetation removal, and overstocking of cattle impacts. Erosion and sediment impacts will be managed in accordance with the strategies outlined in the Surface Water Management Plan and NEMA Erosion and Sediment Control Procedure. The main controls outlined in this plan include:

- Completion of a Ground Disturbance Permit prior to any land disturbance;
- Temporary erosion and sediment controls to be in place prior to any construction activity outside of an existing dirty water management system;
- Use of diversion structures to separate ‘clean’ water runoff from disturbed areas runoff, to minimise volumes of sediment-laden and mine water for management;
- Using designated sediment control devices to control sediment-laden runoff;
- Revegetation of disturbed areas as soon as possible following the completion of construction activities; and
- Timely rehabilitation of subsided ground as required.

Additionally, regular inspections are undertaken of all the project site to identify potential erosion issues, particularly along drainage lines. Permanent photo monitoring points will be established at each area where there is significant erosion.

Salinity Management
Waste water systems will be established to prevent environmental harm from sediment laden or saline water runoff. All areas that are exposed to runoff from coaly or other saline material
are managed as part of the mine water system. This is a closed system which prevents the release of saline water to the surrounding environment unless through a licensed discharge in accordance with the NEMA guidelines. Water from this system is not used for any purposes outside of the system (e.g. saline water is not used for dust suppression on roads).

**Weed Management**

Some noxious weed species have been recorded at the project site. This includes the Mathenge weed (*Prosopsis Juriflora*) an invasive and poisonous weed that is becoming prominent in the project area. The operation manager together with the environment and community manager will prepare an annual plan which identifies the key weed areas that require treatment, and the recommended timeframes and methods for control, based on the type of weeds present.

The presence of weeds is also recorded during annual rehabilitation and ecological monitoring programs which are conducted on both the project corridor and adjacent areas. Weed management activities and the effectiveness of these activities to prevent seed dispersal or recruitment will be reported on an annual basis in the Annual Review.

**Habitat Enhancement**

The protection and enhancement of the habitat within the non-impacted remnant areas of the project site will contribute greatly to increasing the quality and quantity of fauna habitat within the site. The contractor will establish a habitat enhancement program to focus on increasing the habitat available for threatened species within non-impacted remnant vegetation. The long-term aim of this program is to restore the level of fauna habitat present prior to construction operations. To ensure there is adequate replacement of lost habitat in the short term, 500 tree seedlings will be installed within the first three months with the remainder being installed in rehabilitation areas once the woodland ecosystems are mature enough.

Additionally, the Project Proponent will commit to a progressive establishment of habitat corridors throughout the life of the operation. The aim of these corridors is to link the areas of remnant vegetation to riparian vegetation along the road stretch. As a result, the project area will be rehabilitated to woodland vegetation, creating a significantly larger corridor.

**Rehabilitation Management**

The rehabilitation objectives for the project include the following:

- Provide a road map for enhancing the conservation of biodiversity along the project corridor
- Meet the requirements of the requirements of the Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006.
- Provide a sustainable final landform and use that can co-exist with the surrounding land uses;
- Develop native vegetation corridors
- Not to preclude other potential post construction land use options should they be determined to be viable and preferable as part of the detailed project closure planning process.

Generally, the rehabilitation of the project site involves the following processes:

- Shaping of disturbed areas to meet approved landform;
- Backfilling and repair to subsidence cracking;
- Installation of drainage structures;
- Deep ripping;
- Rock raking;
- Installation of habitat features (e.g. acacia segal, Acacia (Salvadora Persica);
- Spreading of topsoil and/or organic matter;
- Application of ameliorants;
- Re-ripping of prepared surface; and
- Revegetation.

The topsoil and vegetation that has been cleared ahead of construction activities will be re-spread over rehabilitation areas to provide a more beneficial growth medium for revegetation, as well as habitat for native fauna. Habitat trees and hollow-bearing logs will also be salvaged and re-used on rehabilitation areas for habitat augmentation.

Revegetation activities will generally involve direct seeding of native woodland ecosystems using a combination of seed collected from on site, as well as that purchased from external sources. Tube stock may also be utilised in some circumstances to augment the revegetation process. The native vegetation communities that will be re-established include:

- **Acacia (Salvadora Persica) and;**
- **Acacia Segal**

### Rehabilitation Completion Criteria

The completion criteria are objective target levels or values that can be measured to quantitatively demonstrate the progress and ultimate success of a biophysical process. This criterion has been developed for each phase of rehabilitation so that the rehabilitation success can be tracked throughout the life of the project.

The performance criteria are attributes of the biophysical environment, e.g. soil pH and slope degrees that can be used to approximate the progression of a biophysical process and can be measured to demonstrate and track the progress of an aspect of rehabilitation towards the desired completion criteria. The methodology used to determine the completion criteria for rehabilitation areas is as follows:

- Annual ecological monitoring is undertaken at 3 analogue woodland sites, 3 analogue riparian sites and 1 analogue pasture site (this will be increased to 3 pasture sites as the project nears closure);
- The annual results for each analogue site are averaged to provide a criterion for that community type (woodland, riparian and pasture) for that year;
- This is repeated annually to provide a new criterion each year which is indicative of the condition of the surrounding vegetation.

This method has been chosen as it will account for fluctuations due to climatic conditions and other environmental factors.

### 11.5 Responsibility

HCG’s Health, Safety, Environment and Social (HSES) division will manage the implementation of the Project’s biodiversity management practices and will take primary ownership for ensuring compliance with this Plan. Adherence to the recommendations contained within the Plan will be mandatory, as will compliance with relevant laws and regulations. All contractors and their sub-contractors undertaking activities for HCG Infra Ltd will be required to comply with the protocols contained in this Plan. Relevant roles and responsibilities have been developed for the implementation of this BMP. These are outlined in Table below:

*Table 11:1-Roles and Responsibilities*
### Role Responsibilities

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations Manager</td>
<td>• Approve sufficient resources for the implementation of this plan</td>
</tr>
<tr>
<td>HCG Environment and Community Manager</td>
<td>• Approve sufficient resources for the implementation of this plan</td>
</tr>
<tr>
<td></td>
<td>• Assist with external reporting requirements as well as subsequent revisions of this BMP</td>
</tr>
<tr>
<td>HCG Environment &amp; Community Coordinators</td>
<td>• Facilitate the external reporting requirements outlined in this plan;</td>
</tr>
<tr>
<td></td>
<td>• Undertaken training as required to communicate the requirements of this plan to all relevant personnel and contractors;</td>
</tr>
<tr>
<td>HCG Technical Services Manager</td>
<td>• Allow sufficient time and resources in the mine planning process to salvage ecological resources from areas to be disturbed;</td>
</tr>
<tr>
<td>HCG Environment &amp; Community Officers</td>
<td>• Coordinate the day to day implementation of this BMP, including ecological management activities;</td>
</tr>
<tr>
<td></td>
<td>• Authorise clearing activities in accordance with the BMP;</td>
</tr>
<tr>
<td></td>
<td>• Coordinate the completion of the monitoring programs outlined in this BMP;</td>
</tr>
<tr>
<td></td>
<td>• Assist with external reporting requirements, as well as subsequent revisions of this BMP</td>
</tr>
<tr>
<td>All personnel and contractors</td>
<td>• Undertake all activities in accordance with the requirements of this plan</td>
</tr>
</tbody>
</table>

#### 11.6 Timeline

The implementation of the BMP is expected to be continuous throughout the project period. The frequency of monitoring should be frequent with annual compliance audits to identify risks and gaps.

#### 11.7 Monitoring and Reporting

**Ecological Monitoring**

The condition of the remnant vegetation surrounding the project site will be monitored to identify any potential deterioration in vegetation health or habitat quality as a result of road construction operations. Initially, this monitoring will be undertaken annually, however if the results show negligible change over a reasonable timeframe, the frequency of monitoring may be reduced (through a modification to this management plan).

The flora monitoring component utilises a combination of photo monitoring, Landscape Function Analysis (LFA), comprehensive soil analyses and an assessment of ecosystem structure and habitat characteristics derived from the Kenya Forest Service data to identify changes occurring within the vegetation communities and habitat resources. Flora monitoring will nominally be undertaken between June and July, weather dependent. The flora monitoring will assess the extent, health and condition of vegetation associated with the project site. The monitoring will be undertaken using permanent line-intercept transects to detect changes in floristic composition biannually. Flora monitoring would also include assessing impacts on specific habitat features. Standard photo monitoring points will also be used.
Fauna monitoring will also be biannual, focussing on diurnal, mammals and bird surveys as well as nocturnal surveys. The nocturnal surveys will centre on arboreal mammals, using spotlighting, amphibian searches and Anabat recordings.

The fauna monitoring component comprises targeted mammalian species, birds and micro-bat surveys and habitat assessments. The fauna monitoring program is generally restricted to mammals, birds and micro-bats as they are one of the best bio-indicators of a habitats health as they have been shown to respond to environmental changes over many spatial scales. Specific ecological monitoring locations will be established to meet the requirements of the Environmental License approvals. Should any of the sites monitoring programs identify observable changes in the presence or habitat of other species (e.g. mammals, herpetofauna), or additional threatened species are identified, the monitoring program will be expanded to include these species. Fauna monitoring will nominally be undertaken between June and July, weather dependent. Results and recommendations from the ecological monitoring program will be reported annually in the Annual Review.

**Rehabilitation Monitoring**

An annual rehabilitation monitoring program to confirm the rehabilitation objectives and performance and closure criteria are being met and to identify opportunities for improvement will be developed. The monitoring programs will be designed to effectively monitor onsite revegetation, surrounding vegetation, species diversity and native fauna habitats. The monitoring program consists of the following surveys:

- Annual Rehabilitation Walkover inspection; and
- Long Term Rehabilitation Monitoring Program.

The annual walkover inspection covers all rehabilitation areas on site and provides a general assessment on rehabilitation health and potential emerging issues that require maintenance (e.g. weeds, erosion, poor growth rates). The walkover inspection does not review rehabilitation areas against the closure criteria but provides management recommendations to assist the rehabilitation in moving towards the criteria.

The long-term rehabilitation monitoring program has been designed to compare rehabilitation areas with suitable reference sites from the targeted vegetation communities using quantifiable indicators and ecological targets (criteria). Duplicate or triplicate reference will be selected for each community to account for variations in climate, geology, soils, topography and aspect. Where possible the reference sites will also be spread out to maximise the spatial distribution and subsequent variations in community composition across the local landscape. The criteria derived from the reference sites are separated into rehabilitation phases according to the following guidelines:

- Phase 2 – Landform Establishment;
- Phase 3 – Growth Medium Development;
- Phase 4 – Ecosystem Establishment; and
- Phase 5 – Ecosystem Development.

Note that Phase 1 (decommissioning) is not assessed in the rehabilitation monitoring program as it is associated with removal of infrastructure rather than ecological outcomes.

Rehabilitation monitoring sites are chosen to be representative of the rehabilitation project or like and representative of other areas of rehabilitation. The monitoring program is like the ecological program and involves using a combination of Landscape Function Analyses, comprehensive soil analyses and an assessment of ecosystem characteristics using an adaptation of methodologies derived by the Biometric Model used in the Property Vegetation Planning Process. Permanent transects and photo-points are established to record changes in these attributes over time.
Additionally, targeted fauna monitoring will be undertaken at rehabilitation sites to develop an understanding of the value of fauna habitat within rehabilitation areas, and the return of native fauna to rehabilitation areas. Monitoring will initially be undertaken annually (between June and August) at rehabilitation sites until they have demonstrated that they are trending towards meeting the established criteria, at which time the frequency of monitoring may be reduced. Monitoring will continue at all rehabilitation sites until they have met the criteria.

An assessment of rehabilitation sites against the completion criteria will be reported annually in the Annual Review, in accordance with the NEMA guidelines.

All ecological and rehabilitation monitoring results will be reported in the Annual Review. The Annual Review will include a comparison of data against previous year’s results as well as a list of management recommendations derived from the monitoring reports, and a statement of compliance with NEMA approval conditions. The full monitoring reports will be made available on the HCG Infra Ltd public website by 1 April each year.

The Annual Review will also include a qualitative assessment of the habitat quality scores. It is also recommended that every 2 years a revised Calculator assessment is completed to determine the level of improvement in habitat quality scores.

Any incidents or complaints relating to biodiversity management, will be reported to external parties in accordance with the relevant development consent and legislative requirements.
12 OCCUPATIONAL, HEALTH AND SAFETY (OHS) MANAGEMENT PLAN

12.1 Introduction

This Occupational, Health and Safety management Plan (OHSMP) provides an important link between the contractor’s occupational health and safety management system, and the construction activities undertaken on site. This plan defines the occupational, health and safety processes and practices that HCG will observe during the Road Construction and maintenance.

HCG plans to achieve worker safety and health through the following objectives:

- Designate a qualified safety person to coordinate the program.
- Plan for safety before each job and each new task, using a written Job Safety Analysis (JSA).
- Make regular job site safety inspections and conduct health monitoring.
- Follow safety procedures and rules.
- Provide on-going safety training.
- Enforce safety rules and use appropriate discipline.

12.2 Statutory applications

Key policies, laws and regulations that are applicable to Occupational Health and Safety in Kenya have been referenced in preparation of this OSH plan. The key legislations include Occupational Safety and Health Act, 2007 (OSHA); The Factories and other places of Work (Noise Prevention and Control), 2005; Public Health Act (Chapter 242); and Penal Code (Cap. 63). International best practices such as IFC Environmental, Health, and Safety (EHS) guidelines have been considered in the plan.

12.3 Key safety Issues

- Risks of slips, trips and falls
- Risks related to instability such as from the collapse of structures, earthworks and equipment.
- Risks related to traffic such as vehicle collisions
- Risks related to construction machinery e.g. Earthmoving equipment, lifting equipment,
- Risks of drowning e.g. When crossing water to reach a place of work; working over or nearby water
- Risks related to electricity such as electrocution
- Fire and explosion risks e.g. The use of flammable gas in welding or abrasive cutting techniques
- Risks related to (sub)contracting
- Risks related to green jobs e.g. jobs that help to protect ecosystems and biodiversity, or reduce consumption of energy and raw materials, or reduce waste and pollution.

12.4 Mitigation Measures

- All construction, renovation and maintenance projects will randomly be inspected by OHS staff trained and knowledgeable in construction safety requirements. Safety deficiencies will be noted and forwarded to the appropriate persons, as outlined in this Plan.
- The staff of OHS, and the service provider are expected to work in unison to provide for the safest means of delivery of the project while maintaining the safest possible working and educational environment.
- The office of the Occupational, Health, Safety and Risk management and the Construction Project Coordinators will have the authority to instruct contractors to correct violations of safety regulations or unsafe conditions.
Should a dispute arise regarding a safety issue, the Director of OHS will have the final decision regarding safety issues at the Project site, to include owned, leased, and operated properties.

**Accident Investigation & Reporting Requirements**

- Copies of all accident reports must be filed by the OHS within 24 hours (one business day) of occurrence on any construction project site accident.
- For all fatalities, cases requiring hospitalization, or possible lost-time injuries, the Office of OHS shall be notified immediately.
- Any accident or incident resulting in a lost-time injury, fatality, damage to property or equipment, a serious “near miss,” or the recognition of a potential hazard to health and environment will be investigated by a team consisting of the Coordinator for Construction Safety, the Safety Manager, and the Construction Project Coordinator assigned to the project; as well as others as may be assigned to this investigative team by either the Director of OHS, the Director for Engineering and Construction Services, and/or Contractor administration.

**Job Safety Analysis**

Whenever a non-routine project or task is necessary, a job hazard analysis shall be performed to evaluate the potential risk of injury to personnel and by standers. The analysis will assess each aspect of a task and address the items which could result in an injury to an individual. This involves an evaluation of the mechanics of the operation, identifying what can go wrong, and how to do it safely. OHS personnel will work with Facilities supervisors to provide a job hazard analysis to identify any medical surveillance or personal protective equipment that may be required.

**Alcohol, Drugs and other Prohibited Substances**

The Contractor prohibits the use, possession, distribution, or sale on the project premises, facilities, or work places of any of the following:

- Alcoholic beverages
- Intoxicants
- Illegal drugs
- Drug paraphernalia

Employees must not report for duty or perform work while under the influence of any drug, alcoholic beverage, or intoxicant. Employees on the construction project premises may be subject to removal if found to have such prohibited articles or are under the influence of any of the above substances.

**Excavations and Trenching**

- Any channel, gutter, or ditch greater than four (4) feet in depth but eight (8) feet or less in width is identified as a trench.
- Any channel, gutter, or ditch greater than four (4) feet in depth and also greater than eight (8) feet in width is identified as an excavation.
- A trenching plan and/or excavation plan, approved by a professional engineer experienced in regional soil/ground types, must be submitted by the contractor and approved by both the OHS manager prior to beginning any related work. The contractor must comply with all requirements outlined by Occupational Health and Safety Act 2007.
- Routes for all trenches and/or excavations must be reviewed by the Contractor for potential interference from existing underground utilities.
- Trenches five (5) feet in depth and greater shall have shoring and/or sloping walls to protect personnel from cave-in. Requirements for shoring and/or sloping of walls shall be approved by a professional engineer experienced in regional soil/ground types.
• All materials removed from a trench or excavation shall be placed at least one (1) foot from the edge of the dig.
• Ladders or other means of egress shall be provided in each trench / excavation, spaced with not more than twenty-five (25) feet of lateral travel to reach an egress point.
• Any project site with an open trench or excavation must be secured with a rigid barricade, such as metal fencing, to prevent unauthorized personnel from entering the work site. Any waiver of this rule must be approved by the OHS manager.

**Housekeeping of the Project site**

“Housekeeping” refers to the cleanliness of the project site. Good housekeeping procedures shall be practiced at all times. Housekeeping is one of the most important considerations on a construction site. A well-organized, uncluttered construction site reduces the risk of accidents and increases the efficiency of the workers. It is not attained by special clean ups. It is a continuous process in which everyone must participate throughout the day. Thus:

• All employees and contractors shall keep trash, debris, remnant parts, and other items picked up on a regular – at least daily – basis.
• Trash, debris, remnant parts, and other items shall not be allowed to stockpile.
• Trash, debris, remnant parts, and other items shall not be allowed to remain in walk paths.
• Tools and equipment shall be appropriately stored when not in use.

**Electrical Power Tools and Equipment**

• Each tool, cord, plug, attached cap, and receptacle ends, and any equipment connected by cord and/or plug, shall be visually inspected for external defects each day prior to use. Tools and equipment with defects shall not be used.
• Non-current carrying metal parts of portable and/or plug-connected tools and equipment shall be either grounded or double insulated.
• Non-current carrying metal parts of fixed electrical tools and equipment, including motors, generators, frames and tracks must be grounded.
• Electrical tools and equipment shall not be used in hazardous locations without prior written approval from OHS manager.
• Electrical cords on power tools shall not be used to hoist or lower the tool.
• Effective grounding of the path from circuits, equipment, structures, and conduits to ground must be:
  ✓ Permanent and continuous.
  ✓ Have ample carrying capacity to conduct safely the maximum potential current load.
• When driven rod electrodes are used for grounding, the resistance to ground should not exceed 25 ohms. When the resistance is not as low as 25 ohms, then two or more electrodes connected in parallel shall be used.
• Extension cords may be used only for temporary, short-term purposes. Extension cords shall be heavy duty with three-prong grounding type plug and receptacle. Extension cords must be protected from damage, including foot traffic. Extension cords must not be permitted to create a tripping hazard.

**Lighting and Illumination**

All the Project corridors, offices, aisles and storage areas where work is in progress (normal daily work and/or construction work) shall be lighted with natural light and when work is being done during the night, it shall be lighted with artificial illumination that meets or exceeds the minimum illumination requirements governed by applicable law.

**Fire Prevention and Control**

• All fires, regardless of how minor or if burned out prior to discovery, shall be reported to the OHS office.
• All personnel shall take all precautions necessary to prevent fires caused by their operations.
• Flammable liquids shall not be stock piled on a construction or maintenance site.
• Flammable liquids shall be stored in approved containers, and the containers stored in a flammable’s cabinet.
• No smoking or use of other open flames within 50 feet of where flammable liquids or gases are used, stored, or transferred.
• Combustible trash and debris shall not be allowed to accumulate.
• If cutting, welding, grinding, or other work utilizing an open flame is necessary, the requirements of the Hot Work Program based on the Occupational, Health and Safety regulations of 2007 shall apply.
• If water supply to any fire suppression system must be temporarily turned off for construction, then OHS personnel must be notified to implement the Fire Suppression System Impairment process.
• Any fire watch required due to a construction project causing a water/chemical agent to shut off, or alarm cut off, of more than 4 hours duration will be the responsibility of the contractor to provide personnel.

12.5 Responsibility

Occupational, Health, Safety and Risk Management Office

• Responsible for conducting training on construction and physical safety topics.
• Responsible for advising personnel on construction and physical safety issues.
• Responsible to inform independent contractors of the HCG Construction & Physical Safety Program and explain the Contractor’s expectations in regard to safety.
• Responsible for conducting inspections on Facilities, for appropriate safety guards and equipment.
• Responsible for assisting departmental supervisors in conducting a job safety analysis as appropriate.
• Responsible for conducting random safety inspections on construction, renovation and maintenance of the road project and reporting safety deficiencies to appropriate personnel.
• Safety deficiencies for HCG Facilities personnel will be reported to appropriate Director and supervisor.
• Safety deficiencies for independent contractor employees will be reported to the appropriate Director, overseeing supervisor, or construction project coordinator.

12.6 Timeline

The implementation of this Plan is expected to be continuous throughout the project period.

12.7 Monitoring and Reporting

1. Render first aid immediately, first aid kits are available in all vehicles and job shacks. All serious first aid injuries should be attended to by a trained first aid attendant only. The Contractor should strive to keep all supervisors certified in first aid.

2. For all serious injuries, these general directions should be followed:
   • If you do not have first aid training send or locate a trained first aid attendant immediately
   • Apply artificial respiration if the patient is not breathing (by trained first aid attendants only)
   • Stop any severe bleeding, by applying pressure to the immediate wound area
   • Send someone for a doctor
   • Keep victim lying down: never move injured personnel unless the potential for further injury is immediately present
3. Stay calm. If the patient is breathing and no artery is spurting blood, giving first aid is usually unnecessary, and is often harmful.

4. Do not attempt to remove foreign objects from eyes or any other part of the body or allow anyone else to do so, except a first aid attendant or a doctor.

5. Call for assistance; be ready to give the following information:
   - Accurate directions to the location of the injured person.
   - Nature of the injury.
   - Any assistance that may be required.
   - Give information slowly and clearly.
   - Report back to the scene of the accident; report to the superintendent or first aid attendant that help is on the way.

If no one can be contacted at the office call Local Emergency Service: 999, 911 or 112 and be prepared to give the same information as in (5). Inform operator which of the following is required:
   - Ambulance or helicopter.
   - Police.
   - Fire Department.
   - Electrical Power Company.
   - Gas utility company.
   - Hospital.

Restrict the immediate area of the accident, see if further danger exists; clear the area.
13 EMERGENCY PREPAREDNESS AND RESPONSE PLAN

13.1 Introduction
The primary purpose of this plan is to ensure the safety and well-being of staff and visitors at site when an emergency occurs. The Occupational Safety and Health Act (OSHA), Part VIII Section 82 (1) requires every occupier of a workplace to design evacuation procedures to be used during any emergency and have the procedures tested at regular intervals.

This Emergency Preparedness and Response Plan (EPRP) provides a guideline to assist the service providers in developing these procedures. The document should be used alongside the developed Environmental, Social Management and Monitoring Plan for the project ESIA, and the Project Security Plan (PSP) for the Modogashe-Habasweini-Samatar and Rhamu Mandera road projects. HCG Infra Ltd developed a PSP which establishes key managerial, operational and procedural security guidelines and identifies high level procedures to be implemented throughout the project. The EPRP and PSP will be applicable to construction camps, quarries, accommodation and offices, all project related construction activities, and all movement of project related stores, personnel, materials and machinery/plant.

13.2 Potential Threats to the project
The PSP identifies the following as the potential threats to the project;

i. Inter-communal violence
ii. Local community and labour unrest
iii. Crime
iv. Terrorism

13.3 Responsibilities
Whilst security is a collective responsibility for all project staff, contractors and sub-contractors; HCG has the ultimate responsibility for the safety and security of all project operations and for ensuring that security and safety requirements are met.

HCG consortium management exercises this responsibility through its Project Security Manager (PSM), security team and the designated managers of respective sites/activities with the designated responsibility for the security/incident management function.

The specific responsibilities of the key security positions are;

- The PSM shall be responsible for establishing security awareness and compliance through appropriate security governance, guiding principles, policy and procedures; and ensure these are implemented, audited and periodically reviewed and updated.
- Designated Project Security Supervisors shall direct security activities on a day to day basis. This post would be the principle point of contact for employed/ contracted security personnel and external GoK security personnel. The role would also assist the PSM and deputise when required.
- Project Community Liaison Officers shall act as a liaison between the PSM and project senior management and community leaders/land owners to ensure project security awareness including restrictions and rights of access.
- 3rd party guard service provider shall be responsible for all manned guarding personnel employed or contracted by HCG. This includes vetting and the management of personnel, uniforms, equipment, vehicles and deployment tasks.

13.4 General Evacuation Procedures
The emergency will determine mode of evacuation. The different project sections will have slightly different evacuation routes/procedures due to their nature. The following general evacuation procedures may be adapted in these sections to ensure the safety of all personnel. More details on the evacuation protocol may be found in the PSP.
Emergency Evacuation Procedures

Table 13.1: A summary of the emergency evacuation procedures for various emergency situations

<table>
<thead>
<tr>
<th>(A) EVACUATION PROCEDURES</th>
<th>(B) FIRE</th>
<th>(C) BOMB THREATS &amp; EXPLOSIONS</th>
<th>(E) GENERAL TIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ The Emergency will determine evacuation</td>
<td>▪ Evacuate the immediate vicinity of fire&lt;br&gt;▪ Phone the brigade&lt;br&gt;▪ Evacuate according to procedure A&lt;br&gt;▪ Avoid smoke filled areas&lt;br&gt;▪ If you must move through smoke laden areas, keep as low as possible to the floor&lt;br&gt;▪ Smoke rises so always go down stairs&lt;br&gt;▪ If trapped by fire, close doors and seal with material or clothing, keep calm, go to a window and call for help to attract attention</td>
<td>▪ The person who receives the call must try to obtain all possible information from the person giving the threat&lt;br&gt;▪ Keep him talking, listen for background noises and the accent of the person&lt;br&gt;▪ Try and establish where the bomb is planted and what it looks like&lt;br&gt;▪ Give all the information to emergency leader&lt;br&gt;▪ If possible open all doors, windows and cupboards&lt;br&gt;▪ If ordered to evacuate, follow procedure A</td>
<td>▪ Keep calm at all times&lt;br&gt;▪ Have emergency telephone numbers at hand&lt;br&gt;▪ Be observant, be able to identify strange persons and remember details&lt;br&gt;▪ Good housekeeping and safe habits reduce fire risks&lt;br&gt;▪ Acquaint yourself with first aid and fire equipment and know where it is situated</td>
</tr>
<tr>
<td>▪ Follow the instructions of the emergency team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Leave personal belongings behind and make sure your colleagues evacuate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Keep out of the way of emergency personnel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Always evacuate down and only in extreme cases up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Use stairs. Do not use lifts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Report to the assembly point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Do not return to the building until it is declared safe</td>
<td></td>
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</tr>
</tbody>
</table>

13.5 Monitoring and reporting

The PSM shall submit a monthly security report to the project management team and relevant stakeholders, covering as a minimum the following information:

▪ Details of security requirements, priorities, plans and programs being implemented within the reporting period.
▪ Details of forthcoming budgetary requirements.
▪ Details of any changes to security management appointments or security contractors.
▪ Details of any significant project risks and mitigations which have implications for the project or budgetary planning.
▪ Summary details of any security related incidents reported or identified during the reporting period, all serious incidents shall be reported immediately to the relevant project senior management personnel.
▪ Declaration of compliance regarding all contracted security service providers.
14 LABOUR MANAGEMENT PLAN

14.1 Introduction

This Plan describes the requirements and expectations in terms of compliance, reporting, roles, supervision and training with respect to labour and working conditions, including camp accommodation. This Plan is expected to be applicable to KeNHA contractors, bearing in mind that KeNHA's effectiveness in managing third parties will vary in accordance with the leverage KeNHA is able to exercise. This Plan will be applicable during the pre-construction, construction and decommissioning phases of the road project.

The objectives of this Plan will be to:

- Promote fair and equitable labour practices for the fair treatment, non-discrimination and equal opportunity of workers
- Establish, manage, promote and maintain a healthy management-worker relationship
- Protect workers’ rights including migrant and third-party workers
- Promote healthy, safe, secure and comfortable accommodation that does not impact negatively on the communities in the surrounding area
- To protect and promote the health of workers.

14.2 Statutory applications

Key Kenyan legislation and laws were referenced in the development of this LMP. These include the Employment Act 2007, Labour Relations Act 2007, and Sexual Offences Act, 2006. International best practices such as International Finance Corporation’s (IFC) Performance Standards 2, (Labour and Working conditions), international guidelines and International Labour Organization (ILO) Core conventions were considered.

The considered ILO conventions include:

- Equal Remuneration Convention (1951) (No. 100) - Calls for equal pay and benefits for men and women for work of equal value.
- Discrimination (Employment and Occupation) Convention (1958) (No. 111) - Calls for a national policy to eliminate discrimination in access to employment, training, and working conditions, on grounds of race, colour, sex, religion, political opinion, national extraction or social origin, and to promote equality of opportunity and treatment.
- Minimum Age Convention (1973) (No. 138) - Aims at the abolition of child labour.
- Worst Forms of Child Labour Convention (1999) (No. 182) - Calls for immediate and effective measures to secure the prohibition and elimination of the worst forms of child labour.

14.3 Key Labour Issues

Several labour issues and concerns about the nature of employment were raised during the public participation and consultation process with the key stakeholders. These are summarised as follows:

i. Recruitment and selection of project workers;

There may be a wrong perception of unfair recruitment and selection practices by the workers and the risk of recruitment of individuals who are below the working age of 18 years. This could lead into community tensions resulting to stop work practices that affect productivity. Any risk in employment of minors (under 18 years) could lead to exposure to hazardous situations and be subject to impaired social development. This can result to increased health and safety risk to workforce, non-compliance with national labour laws and reputational risk to the Project.

ii. Conditions of employment – earnings and benefits;
There is a risk of wrong perception about poor, inadequate and unequal remuneration for the selected employees. The perceptions may range from wages, salaries and benefits being poor or that foreigners are treated better and receive better conditions of employment. This could result to project risks such as Industrial action – work stoppages, absenteeism, sit-ins, and sabotage.

iii. Labour relations - Cultural diversity of workers

The road traverses land inhabited by Somalis (Ogaden and Ajuran) and Boranas who are mainly Muslims. The Muslims have conserved their culture from time immemorial. Nonetheless other religions such as Christianity are still available albeit in low numbers. There may be suspicion of ill intention from people from other tribes and a perception of inferiority because of one’s cultural background.

The different cultures meeting in the workplace may result into feelings of distrust and suspicion of other cultural groups. Most common worker risk is the perception that one’s culture is not respected or valued. The project impacts could end up being conflicts arising between different cultures or tribes resulting in tension, which could lead to violence and work stoppages. Foreign workers may also feel threatened and leave resulting in skills gap.

iv. Handling of potential conflicts between workers

Workers may feel aggrieved at the construction/camp sites especially if they don’t know the employee code of conduct/rules and regulations or know how to vent their grievances. This can result into workers embarking on various forms of industrial action. They may take matters into their own hands, which can result in violence and conflict that could affect workplace harmony.

v. Worker engagement mechanisms

A concern of how the communication channels between the workers and the project management should be structured and adopted. The workers may be unaware of activities that affect them if proper communication channels are not in place and may also culminate into rumours/misinformation. This can lead into industrial action due to rumours or incorrect perceptions. Poor morale and an unproductive workforce could also be a key impact of inefficient/inadequate workers communication and engagement.

vi. Workers’ accommodation

A concern about the nature of accommodation facilities and their standards was raised. The workers camp sites should be of acceptable standards. Substandard accommodations may lead to discontent amongst the residents and concerns about perceived health risks. The general appearance of the camp may deteriorate making camp life unpleasant.

Workers may have low morale and perceive KENHA to not care about their welfare, which in turn affects motivation and productivity.

vii. Strained Community relations

Neighbouring communities may be inconvenienced by camp activities like noise/waste/traffic, hence may lead to drastic actions that will impact the workers’ movement to the project site. This may result in negative actions towards camp operations such as road closures and the prevention of workers or suppliers from entering the worksite.

viii. Spiritual/religious considerations at the workplace

The religious workers may require special considerations for certain times of the day to undertake their spiritual rituals. Workers will want access to places of worship for their chosen religion. They may leave the camps and go into the local towns and villages in search of an appropriate place of worship.
14.4 Mitigation Measures

Mitigation measures have been defined on the basis of KeNHA’s standards together with other relevant industry good practice and risk assessments appropriate to road construction activities. KeNHA and its service providers are required to implement and comply with the following mitigations as appropriate to their scope of work in order to avoid, minimise and control impacts and risks associated with labour and working conditions. The following mitigation measures have been proposed for the potential labour issues arising from the road project.

The implementation of the actions necessary to meet the requirements of these ESMPS should be managed through the client’s Environmental and Social Management System (ESMS). The scope of application of these ESMPS applies to workers directly engaged by the client (direct workers), workers engaged through third parties to perform work related to core business of the project for a substantial duration (contracted workers), as well as workers engaged by the client’s primary suppliers (supply chain workers). The following measures should be put in place:

14.4.1 Direct workers

14.4.1.1 Working Conditions and Management of Worker Relationship

a) Human Resources Policies and Procedures

- The client and contractor will adopt and implement human resources policies and procedures appropriate to its size and workforce that set out its approach to managing workers consistent with the requirements of IFC Performance Standard 2 and the national laws stated in section 14.2.

- The client and contractor will provide workers with documented information that is clear and understandable, regarding their rights under national labour and employment law and any applicable collective agreements, including their rights related to hours of work, wages, overtime, compensation, and benefits upon beginning the working relationship and when any material changes occur.

b) Working Conditions and Terms of Employment

- The client and contractor will comply with the Employment Act 2007 to ensure the basic minimum conditions for employment are met such as; hours of work, annual leave, maternity leave, sick leave, housing, Payment to the National Housing Development Fund, water, food and medical attention.

- Where the client and contractor is a party to a collective bargaining agreement with a workers’ union, such agreement will be respected. Where such agreements do not exist, or do not address working conditions and terms of employment, the client will provide reasonable working conditions and terms of employment.

- The client and contractor will identify migrant workers and ensure that they are engaged on substantially equivalent terms and conditions to non-migrant workers carrying out similar work.

- Where accommodation services are provided to workers, the client and contractor will put in place and implement policies on the quality and management of the accommodation and provision of basic services. The accommodation services will be provided in a manner consistent with the principles of non-discrimination and equal opportunity. Workers’ accommodation arrangements should not restrict workers’ freedom of movement or of association.

c) Workers’ Organizations/Unions

- The client and contractor will comply with the Labour Relations Act, 2007 which recognizes workers’ rights to form and to join workers’ unions of their choosing without interference and to bargain collectively. Where the Act substantially restricts workers’ organizations/unions, the client will not restrict workers from developing alternative mechanisms to express their grievances and protect their
rights regarding working conditions and terms of employment. The client should not seek to influence or control these mechanisms.

- In either case described in the point above, the client and contractor will not discourage workers from electing worker representatives, forming or joining workers’ organizations/unions of their choosing, or from bargaining collectively, and will not discriminate or retaliate against workers who participate, or seek to participate, in such organizations/unions and collective bargaining. The client and contractor will engage with such workers’ representatives and workers’ organizations/unions and provide them with information needed for meaningful negotiation in a timely manner. Workers’ organizations/unions are expected to fairly represent the workers in the workforce.

d) Non-Discrimination and Equal Opportunity

- The client and contractor will not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The client and contractor will base the employment relationship on the principle of equal opportunity and fair treatment, and will not discriminate with respect to any aspects of the employment relationship, such as recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices. The client and contractor will take measures to prevent and address harassment, intimidation, and/or exploitation, especially in regard to women. The principles of non-discrimination apply to migrant workers.

- The client and contractor will comply with the Employment Act 2007 to ensure there is no forced labour, discrimination in employment and sexual harassment. In circumstances where Kenyan law is inconsistent with IFC Performance Standard 2, the client and contractor are encouraged to carry out its operations consistent with the intent of the point above without contravening applicable laws.

- Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job will not be deemed as discrimination, provided they are consistent with the Kenyan law.

e) Retrenchment

- Prior to implementing any collective dismissals, the client and contractor will carry out an analysis of alternatives to retrenchment. If the analysis does not identify viable alternatives to retrenchment, a retrenchment plan will be developed and implemented to reduce the adverse impacts of retrenchment on workers. The retrenchment plan will be based on the principle of non-discrimination and will reflect the client’s consultation with workers, their organizations/unions, and, where appropriate, the government, and comply with collective bargaining agreements if they exist. The client will comply with all legal and contractual requirements related to notification of public authorities, and provision of information to, and consultation with workers and their organizations/unions.

- The client and contractor should ensure that all workers receive notice of dismissal and severance payments mandated by law and collective agreements in a timely manner. All outstanding back pay and social security benefits and pension contributions and benefits will be paid (i) on or before termination of the working relationship to the workers, (ii) where appropriate, for the benefit of the workers, or (iii) payment will be made in accordance with a timeline agreed through a collective agreement. Where payments are made for the benefit of workers, workers will be provided with evidence of such payments.
f) **Grievance Mechanism**

The client and contractor will provide a grievance mechanism for workers (and their organizations/unions, where they exist) to raise workplace concerns. The client will inform the workers of the grievance mechanism at the time of recruitment and make it easily accessible to them. The mechanism should involve an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution. The mechanism should also allow for anonymous complaints to be raised and addressed. The mechanism should not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.

### 14.4.1.2 Protecting the Work Force

a) **Child Labour**

The client and contractor will not employ children under the age of 18 years in any manner that is economically exploitative or is likely to be hazardous or to interfere with the child’s education, or to be harmful to the child’s health or physical, mental, spiritual, moral, or social development.

b) **Forced Labour**

The client and contractor will not employ forced labour, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labour, such as indentured labour, bonded labour, or similar labour-contracting arrangements. The client will not employ trafficked persons.

c) **Occupational Health and Safety**

The client and contractor will provide a safe and healthy work environment, taking into account inherent risks in its particular sector and specific classes of hazards in the client’s work areas, including physical, chemical, biological, and radiological hazards, and specific threats to women. The client will take steps to prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, as far as reasonably practicable, the causes of hazards. In a manner consistent with good international industry practice, as reflected in various internationally recognized sources including the World Bank Group Environmental, Health and Safety Guidelines, the client will address areas that include the (i) identification of potential hazards to workers, particularly those that may be life-threatening; (ii) provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (iii) training of workers; (iv) documentation and reporting of occupational accidents, diseases, and incidents; and (v) emergency prevention, preparedness, and response arrangements.

### 14.4.2 Workers Engaged by Third Parties

- The client and contractor will provide a safe and healthy work environment as stipulated in section 14.4.1 on occupational health and safety.
- With respect to contracted workers the client and contractor will take commercially reasonable efforts to ascertain that the third parties who engage these workers are reputable and legitimate enterprises and have an appropriate ESMS that will allow them to operate in a manner consistent with the requirements of this ESMP, except for the subsection on retrenchment section 14.4.1.
- The client and contractor will establish policies and procedures for managing and monitoring the performance of such third party employers in relation to the requirements of this ESMP. In addition, the client and contractor will use...
commercially reasonable efforts to incorporate these requirements in contractual agreements with such third party employers.

- The client will ensure that contracted workers, covered in the above preceding points of this ESMP, have access to a grievance mechanism. In cases where the third party is not able to provide a grievance mechanism the client and contractor will extend its own grievance mechanism to serve workers engaged by the third party.

14.4.3 Supply Chain

- Where there is a high risk of child labour or forced labour in the primary supply chain, the client and contractor will identify those risks consistent with paragraphs on child labour and forced labour above (Section 14.4.1). If child labour or forced labour cases are identified, the client and contractor will take appropriate steps to remedy them. The client and contractor will monitor its primary supply chain on an ongoing basis in order to identify any significant changes in its supply chain and if new risks or incidents of child and/or forced labour are identified, the client and contractor will take appropriate steps to remedy them.

- Additionally, where there is a high risk of significant safety issues related to supply chain workers, the client and contractor will introduce procedures and mitigation measures to ensure that primary suppliers within the supply chain are taking steps to prevent or to correct life-threatening situations.

- The ability of the client and contractor to fully address these risks will depend upon the client's and contractor's level of management control or influence over its primary suppliers. Where remedy is not possible, the client and contractor will shift the project's primary supply chain over time to suppliers that can demonstrate that they are complying with this ESMP.

14.4.4 Additional Measures

- Develop a Human Resource policy that describes the:
  - Selection criteria of each position, method of recruitment, places of recruitment, and transparency clauses
  - Mechanisms of dealing with child labour
  - Contract arrangements and content, equal pay for equal work policy, procedures for wage surveys to assess local conditions and industry averages, work bands and parallel pay scales.
  - Procedures for worker dismissal
  - Disciplinary procedure
  - Industrial action response protocol

- Develop an adequate and effective employee grievance system

- Promote cultural awareness during induction and working period

- Develop a code of conduct for the project to include:
  - Acknowledgement and respect of cultural/tribal differences in respect to diet /religion/ traditions
  - Non-discrimination and equal opportunity
  - Harassment, types and consequences
  - Community "do's and don'ts"

- Managers, supervisors, employees to be inducted in these procedures before starting to work

- Female grievance officers (confidants) to be made available for female workers

- Develop effective worker engagement and communication mechanisms to include;
  - Worker committees
  - Regular written communications describing relevant operations activities
  - Use of notice boards
  - Use of toolbox talks
Continuous supervisor-led communications

- Construction of facilities meant for workers’ accommodation should be to the most acceptable minimum requirements
- Provide temporary places (tents) of worship at the camp sites
- Allow for breaks to perform religious rituals especially to the Muslim workers
- Develop and implement control measure to minimise the camp’s activities impacts on the community

### 14.5 Responsibilities

**i. Kenya National Highways Authority**

- Ensuring the effectiveness of this Plan
- Communicating improvement objectives and targets in accordance with the guidance provided in this Plan
- Ensuring adequate resources are available to meet objectives of the Plan

**ii. Service provider**

- Management of the construction team
- Periodic review of grievances regarding working conditions or other operation issues that may require additional corrective measures
- Ensure all aspects as set out in this LMP are strictly adhered to and implemented.

### 14.6 Timeline

The implementation of the mitigation measures will be done during the pre-construction and construction phases of the project.

- The Human Resource policy inclusive of the Project Code of Conduct will be one of the key tools to ensure the effective implementation of this plan. It should be developed at the pre-construction phase, and regularly updated to incorporate any gaps that may arise during the construction phase.
- The induction trainings on the Human Resource policy and Code of Conduct for all staff should be done at the beginning of employment contracts
- Awareness on cultural diversity to be done at the beginning of employment and quarterly during the construction phase
- Communication between the Engineers, supervisors and the workers to be done continuously according to the need.
- Acceptable camp site facilities and welfare amenities to be provided for the workers at the pre-construction phase and be maintained on a monthly basis

### 14.7 Monitoring and Reporting

Mechanisms for monitoring the Labour Management Plan will be put in place to monitor the implementation and effectiveness of management and mitigation measures, to assess the actual experienced impacts against the anticipated ones and demonstrate compliance to the applicable laws and regulations. The LMP will be continuously updated depending on the arising impacts, both to the workers and the community along the proposed road project. The contractor and KeNHA may carry out desktop or field based inspections to confirm the implementation of the proposed mitigation measures. The monitoring will be carried out through: Assessments, audits and performance indicators as summarised in Table 13:1.

**Table 14:1: Labour Management Plan performance indicators.**

<table>
<thead>
<tr>
<th>Performance indicator</th>
<th>Measurement</th>
<th>Target/benchmark</th>
<th>Frequency of report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grievances lodged</td>
<td>Type and number</td>
<td>Closed or adequately responded to within 30</td>
<td>Monthly</td>
</tr>
<tr>
<td>Issue Type</td>
<td>Type and Number</td>
<td>Performance Indicators</td>
<td>Reporting Frequency</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------</td>
<td>---------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Disciplinary cases</td>
<td>Type and number</td>
<td>Reduction in disciplinary breaches</td>
<td>Monthly</td>
</tr>
<tr>
<td>Pay slip queries</td>
<td>Type and number</td>
<td>Downward trend</td>
<td>Monthly</td>
</tr>
<tr>
<td>Lost hours due to industrial action</td>
<td>Lost hours</td>
<td>Zero</td>
<td>Monthly</td>
</tr>
<tr>
<td>Camp committee issues raised</td>
<td>Type and number</td>
<td>Closed before next meeting</td>
<td>Monthly</td>
</tr>
<tr>
<td>Food or lodging complaints</td>
<td>Type and number</td>
<td>Reduction and/or downward trend</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

After the monitoring of the LMP aspects, periodic reports will be written both for the construction sites and the camp sites, addressing the performance indicators (13:1). Internal and external reporting requirements will be adhered to by KeNHA and the Contractor. Reporting on the measures highlighted in the LMP will also be done. The issues to be addressed in these reports include:

- Grievances lodged by type and number, illustrated with graphs. Open grievances by type and number
- Disciplinary action by type and number, including graphs
- Induction training numbers, queries and comments
- Issues raised by workers’ committees and action taken
- Workforce numbers by local and immigrant workers - actual against planned
- Industrial relations incidents - stoppages go slow, threats, damage to property, violence
- Lost hours by category
- Absenteeism, sick leave and late arrivals
- Issues raised by camp committees and action taken
- Camp numbers by local and foreign workers - actual against planned
- Camp incidents
15 SOCIAL IMPACTS MANAGEMENT PLANS

15.1 Introduction
The objective of this social impact management plan is to provide guidelines to all parties involved during the construction, maintenance and use of the road in fulfilment of the social requirements. The overall long-term objective of this SIMP is to ensure that the social interests of all the stakeholders are put into consideration during all the project phases. The project management is expected to commit to the following aspects:

- The Service provider will engage environmental services (Consultants) to monitor the implementation of the management plan on a pre-agreed schedule;
- To take into consideration the Stakeholders’ desires and interests where the road extent touches on private property;
- The project implementation shall uphold national policies and legal requirements on social aspects at all times during the project implementation;
- To resolve problems and complaints arising from damages, and property losses within reasonable timeframes to ensure a smooth flow of construction operations and reduce social conflicts;
- Implement and continuously review this Social Impacts Management Plan for the benefit of acceptability of the project by all stakeholders.

15.2 Statutory Applications
This SIMP was developed in accordance with the requirements of the Equator Principles III, International Finance Corporation’s (IFC) Performance Standards. The applicable Kenyan legislation include Environmental Management and Co-ordination Act (1999), CAP 387 and Environmental Management and Co-ordination (Environmental and Social Impact Assessment/Audit) Regulations, 2003.

15.3 Key Social Issues
Several social issues and concerns were raised during the public consultation and participation process. The negative concerns raised by the different stakeholders include:

- Involuntary resettlement and loss of business
- Spread of STD, HIV and AIDS
- Insecurity
- Cultural changes
- Socio-political disputes
- Delays in transportation (Increased traffic)
- Road safety e.g. possible risks of accidents on the road
- Gender and Equality biases
- Access to properties
- Disruption and loss of businesses
- Increase in community division and conflict due to influx of non-resident workers

15.4 Mitigation Measures
The management of the road is categorised into the construction and road use phases which have impacts that require unique mitigation measures. The following are the proposed mitigation measures for the key adverse social impacts.

i. Involuntary resettlement and loss of business
   - Conduct an asset survey to identify Project Affected Persons (PAPs) and assets;
   - Liaise with the local leaders in identifying land owners of affected parcels.
   - Inform the affected community about intended works and extent of effects on their property early enough;
- The proponent should ensure that the final designs of the road will be realigned to minimize displacement as much as possible;
- Provide support for alternative sources of livelihood to the locals e.g. bee keeping, sustainable sand harvesting, trade in other commodities other than livestock and formal employment to the locals.

**ii. Spread of STD, HIV and AIDS**
- Create awareness of STDs, HIV/AIDS in workers camps through campaigns or trainings.
- Control of prostitution in main towns situated along the highway in collaboration with the Police and County Governments.
- Ensure an adequate and accessible Provision of condoms to workers both male and female.

**iii. Insecurity**
- Thoroughly screen workers, suppliers and distributors.
- Ensure 24-hour surveillance by engaging the Administration Police services during the day and night.
- Install CCTV cameras in strategic locations in workers’ camps.
- Ensure close liaison with the local Police Department.
- Avoid the disposition of meat waste and animal carcasses near the campsites and villages.

**iv. Cultural changes**
- Use Informed Consultation and Participation (ICP) of the Affected Communities / elders within the region to identify cultural heritage of importance.
- Consult the relevant national (Ministry of Sports, Culture and Arts) or local regulatory agencies that are entrusted with the protection of cultural heritage.
- Consult with appropriate department of Kenyan government (e.g. Ministry of Sports, Culture and Arts) to obtain agreement on Chance Find Procedure.
- Undertake further research of appropriate archives (local/national) as part of pre-construction surveys.
- If any features of cultural heritage significance be identified in an area where it is likely to be disturbed by the proposed works, consult with community representatives on matters concerning the management of the site.
- Provide awareness training to all staff to ensure that Chance Finds Procedure is implemented where required.

**v. Socio-political disputes**
- Ensure all stakeholders and the public are involved in the planning process.
- Ensure proper identification and compensation of all persons who will lose businesses and land.
- Obtain necessary permissions and approvals from the County Governments.
- Ensure EIAs are conducted for specific project activities such as sand harvesting, borrow pit and quarrying sites.
- Largely involve the community in the project through their leaders, take keen in timely addressing their grievances and ensure a good percentage of the local community members are employees in the project.

**vi. Delays in transportation (Increased traffic)**
To avoid delays to road users;
- The contractor will be required to plan itineraries for site traffic on a daily basis. Traffic management and control is mandatory throughout the project;
- Temporary road signs that are visible both during the day and at night indicating road works and restrictions will be required;
- The contractor should also set aside parking bays for heavy goods vehicles and public transport vehicles;
Areas where construction is taking place should have clearly marked speed reduction signage.

Development of a traffic management plan.

### vii. Road safety e.g. possible risks of accidents on the road

- Provision of proper road safety elements such as adequate shoulders, road signs.
- Provision of speed regulating facilities such as speed bumps, zebra crossings and road signs and regular inspections for their presence;
- Drivers' sensitization on road safety,
- Capacity building of traffic police officers on traffic management during operation of the road;
- Enforcement of traffic laws;
- Installation of proper road signs Sensitization of locals on observing traffic rules and on usage of pedestrian lanes at human settlement crossings
- Conduct public awareness on road safety for the general public and in schools
- Provision of Signage and provision of heavy commercial vehicle parking areas.
- Regular maintenance of the road to ensure the surface and related furniture remains in good working conditions and all signs are up.

### viii. Gender and Equality biases

- Applying all Kenyan Constitutional requirements on gender throughout the project.
- Apply all guidelines under the National Gender and Equality Commission Act, 2011.
- Adhere to Gender Strategy (FY16-23).
- Undertake gender mainstreaming at project design, implementation/ construction, operation and decommissioning stages.
- Incorporate best practices in gender mainstreaming from project partners.
- Developing the project sustainably by transforming the distribution of opportunities, resources and choices for males and females so that they have equal power to shape their own lives and contribute to their families, communities, and country.

### ix. Access to properties

- Disruption of access to property must be kept to a minimum at all times. Where such disruption is unavoidable, the Service provider shall advise the affected parties and the Resident Engineer at least seven working days in advance of such disruption.

### x. Disruption and loss of businesses

- Provide support to squatters to establish small-scale businesses in other suitable locations in affected town.
- Educate squatters on the need to maintain free road reserve.
- Provide comprehensive health and safety education to squatters in affected town.
- Promote other sources of livelihood among the local communities.
- Provision of subsistence of transitional allowance to squatters.
- Provision of employment in the project for the squatters where possible.

### xi. Increase in community division and conflict due to influx of non-resident workers

- Encourage employees and contractors to participate in community events aimed at enhancing positive and friendly interaction between local communities and non-resident workers.

15.5 Responsibilities

Precautions to ensure that the projects impacts on the social wellbeing of the surrounding communities are minimised calls for a concerted effort from the project management,
contractors and all stakeholders. The specific responsibilities of the project management are summarised in table below;

*Table 15: Actors and responsibilities*

<table>
<thead>
<tr>
<th>Actor</th>
<th>Responsibility</th>
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<tbody>
<tr>
<td>KeNHA</td>
<td>▪ To construct, upgrade, rehabilitate and maintain roads under its control,</td>
</tr>
<tr>
<td></td>
<td>▪ Control the national roads and road reserves and access to the road side development,</td>
</tr>
<tr>
<td></td>
<td>▪ Implement the road policies in relation to the national roads,</td>
</tr>
<tr>
<td></td>
<td>▪ Ensure adherence to the roles and guidelines on the axle load control prescribed under the Traffic Act (Cap. 403) and under any regulations under these Act ensuring roads quality as prescribed by the minister,</td>
</tr>
<tr>
<td></td>
<td>▪ To monitor and evaluate the use of national roads,</td>
</tr>
<tr>
<td></td>
<td>▪ Liaise and coordinate with other road authorities in planning and operation with respect to roads.</td>
</tr>
<tr>
<td>NEMA</td>
<td>▪ Co-ordinating and supervising the various environmental management activities being undertaken by other statutory organs. It also ensures that environmental management is integrated into development policies, programmes, plans and projects.</td>
</tr>
<tr>
<td>Service Provider</td>
<td>▪ Establish a site environmental and social office to ensure the aspects of this SIMP are incorporated into project implementation, with close consultations with KeNHA and the environmental consultant.</td>
</tr>
<tr>
<td></td>
<td>▪ May bring on-board a sociologist to assist in the communication with the community.</td>
</tr>
<tr>
<td>Supervisor</td>
<td>▪ Engaged by KeNHA to ensure efficient implementation of this SIMP. The supervisor will be an environmental expert who understands the recommendations of the SIMP especially the timeframes, durations and targets.</td>
</tr>
<tr>
<td>CLO</td>
<td>▪ Communities that will be affected along the road construction corridor will be expected to form a Project Liaison Committee which will comprise of representatives from different sectors of the community. There shall be an appointed chairperson and a secretary who will be the mediator between the contractor and the community.</td>
</tr>
</tbody>
</table>

### 15.6 Timeline

Most of the mitigation measures will be implemented during the construction phase. Assessment of the potential impacts on buildings and structures, and the number of people to be affected was carried out during the ESIA study.

- Redesigning of the road to avoid peoples’ property will be done before the construction begins.
- Awareness campaigns for HIV/AIDs will be scheduled on a quarterly basis to keep the workers informed on the risks.
- Security surveillance on the project site and camp sites will be carried out on a continuous basis during the pre-construction and construction phases.
- Staff and other workers will be trained on the required procedures for chance finding of cultural heritage items at the beginning of the construction phase.
- The community and stakeholders should be engaged on a continuous basis to prevent socio-political disputes.
- Proper road signage to be installed after the construction is completed and to be monitored on a quarterly basis.
- Community events to integrate with the workers to be carried out at least twice a year.

### 15.7 Monitoring and Reporting

Mechanisms for monitoring the SIMP will be put in place to monitor the implementation and effectiveness of management and mitigation measures, to assess the actual experienced
impacts against the anticipated ones and demonstrate compliance to the applicable laws and regulations. The SIMP will be continuously updated depending on the arising impacts, both to the workers and the community along the proposed road project. The service provider and KeNHA may carry out desktop or field-based inspections to confirm the implementation of the proposed mitigation measures.

Monthly reports will be compiled of the data and information collected during the monitoring process to provide a basis for improving the SIMP. The report may include:

- Number of insecurity cases reported at the camps/police post
- Any conflicts within the neighbourhood
- Number of businesses affected by the project
- Any obstruction of access to various parts of the nearby towns
16 STAKEHOLDER ENGAGEMENT PLAN

This SEP is part of the suite of Management Plans developed for Modogashe-Habasweini-Samatar Road project Environmental and Social Management System (ESMS) and covers all Project activities that require engagement with local communities and other stakeholders. Environmental and Social Impact Assessment (ESIA) of Modogashe-Habasweini-Samatar Road project has already been completed therefore, this live Plan has been designed for future application to the project’s construction and later operations phases. The SEP will provide continuous engagement thus ensuring that all relevant issues are captured and stakeholders are satisfied that their views are heard and put into consideration. All other future stakeholder disclosure, consultation and engagement activities will be undertaken as described in this Plan.

The main objective of this SEP is to provide the procedures and approach that should be followed during the engagement with the different stakeholders.

16.1 Statutory Applications

This SEP was developed in accordance with the requirements of the Equator Principles, World Bank/International Finance Corporation’s (IFC) Performance Standards and applicable Kenyan national legislation.

16.2 Project Stakeholders

Identification and analysis of the various stakeholders was carried out during the ESIA study for the Modogashe-Habasweini-Samatar Road project. After the public consultation and participation process the following were identified as key stakeholders for this project.

- Kenya National Highways Authority (KeNHA)
- Kenya Urban Roads Authority (KURA)
- Kenya Rural Roads Authority (KeRRA)
- Kenya Wildlife Service (KWS)
- Kenya Forest services
- National Environment Management Authority (NEMA)
- County Governments of Isiolo and Wajir
- Civil Society Organisations (CSOs)
- Community members along the proposed way leave / village elders
- Local community representatives (Local political and community leaders)
- Religious Leaders
- Academia, think tanks and opinion leaders
- Farmers, land owners and traders along the road corridor
- Business operators – Hotel owners, shop owners, bus owners among others
- Truck drivers, bus and taxi drivers turn boys, mechanics

16.2.1 Past stakeholder Engagement

Several stakeholder engagement meetings were carried out by the consultant to obtain their views during the ESIA study. A summary of the public consultation and participation meetings is illustrated in Table 16:1 and 16:2.
Table 16:1: A summary of past stakeholder engagement

<table>
<thead>
<tr>
<th>Date</th>
<th>Venue</th>
<th>Purpose of the meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.05.2017</td>
<td>Modogashe and Habasweini towns</td>
<td>Obtain the views of the general public</td>
</tr>
<tr>
<td>11.05.2017</td>
<td>Palace Hotel, Wajir town</td>
<td>Obtain the views of the key stakeholders</td>
</tr>
</tbody>
</table>

Table 16:2: A summary of the attendance during the public participation

<table>
<thead>
<tr>
<th>S/n</th>
<th>Villages where public consultation and participation took place</th>
<th>Participants (No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Modogashe</td>
<td>107</td>
</tr>
<tr>
<td>2</td>
<td>Habasweini</td>
<td>85</td>
</tr>
<tr>
<td>3</td>
<td>Samatar</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>House to house survey in Skanska</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>House to house survey in Kanjara</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>House to house survey in Legdima</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>232</strong></td>
</tr>
</tbody>
</table>

16.2.2 Stakeholder perceptions

This section gives a summary of the comments, issues and questions raised during the public meetings, key informant interviews and focused group discussions by the various stakeholders. Table 16:3 below illustrates the key issues raised by the stakeholders.

Table 16:3: Key issues raised by stakeholders

<table>
<thead>
<tr>
<th>S/N</th>
<th>Issue raised</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Creation of employment opportunities</td>
<td>Respondents were optimistic that the project will create numerous employment opportunities for both skilled and unskilled labor during the construction and operational phases.</td>
</tr>
<tr>
<td>2</td>
<td>Increased Business Opportunities</td>
<td>Respondents were optimistic that there will be an increase in business opportunities during the construction and operation phases of the project. Small scale business people such as food vendors and kiosk owners will benefit greatly during construction. Once the construction of the road is complete, the existing towns will be economically revitalized.</td>
</tr>
<tr>
<td>3</td>
<td>Cheap and Faster Means of Transport</td>
<td>Respondents were positive that the proposed Modogashe–Habasweini-Samatar road will provide a faster and cheaper means of transport for cargo trucks, passengers and personal cars, from Isiolo to Wajir.</td>
</tr>
<tr>
<td>S/N</td>
<td>Issue raised</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4</td>
<td>Interaction of People from Different Communities</td>
<td>The members of the public revealed that this project will promote national cohesion since people from different communities in Kenya will be working together during construction and operation phases of the project.</td>
</tr>
<tr>
<td>5</td>
<td>Growth of towns</td>
<td>The locals were confident that the road would lead to development of the existing towns and the formation of newer towns.</td>
</tr>
<tr>
<td>6</td>
<td>Transfer of skills</td>
<td>The members of the public suggested that with the road being a source of employment. Many different skilled workers will be employed from within and without the area. This will lead to a transfer of skills and gaining of experience during the construction period.</td>
</tr>
<tr>
<td>7</td>
<td>Noise pollution</td>
<td>There was concern over the possibility of high noise and vibration levels at the project site as a result of excavation, construction and demolition works. The source of noise pollution will include, transport vehicles, construction machinery, metal grinding and cutting equipment, among others. Excavations will also cause vibrations.</td>
</tr>
<tr>
<td>8</td>
<td>Dust generation</td>
<td>The public expressed concerns over possibility of generation of large amounts of dust within the project site and surrounding areas as a result of demolition, excavation works and transportation of building materials.</td>
</tr>
<tr>
<td>9</td>
<td>Loss of Vegetation Cover</td>
<td>Members of the public expressed concerns that during the construction phase of the project there will be clearance of vegetation along the corridor, this will lead to the negative impacts in environmentally sensitive sites such as Ewaso Ngiro flood plain. There will also be loss of few baobab trees along the proposed road. The clearance of vegetation will affect the scenic beauty and ecological functioning of these sensitive areas. Also, the clearance of vegetation will have impacts on the soil particularly increased soil loss which subsequently may impact on the water quality and ecosystem productivity. Most of the respondents proposed that a major landscaping and tree planting should be carried out along the road in order to restore the scenic beauty of the environment.</td>
</tr>
<tr>
<td>10</td>
<td>Displacement of Local Communities and Loss of Property</td>
<td>The participants were concerned that the proposed project will lead to minimal compulsory land acquisitions causing displacement of people and loss of a few properties along the transport corridor. Members of the public disclosed fear of the compensation not being done appropriately; It was noted that the project will affect persons living in Modogashe and Habasweini towns situated along the corridor.</td>
</tr>
<tr>
<td>11</td>
<td>Disruption and loss of businesses</td>
<td>The squatters who have established businesses in the road reserve especially in Modogashe and Habasweini towns were concerned that they will be evicted from the road reserve in order to pave way for the construction of the road. Some business people who depend on squatters operating businesses on the road reserves expressed concern that there would be low turnover for their sales.</td>
</tr>
<tr>
<td>12</td>
<td>Road accidents</td>
<td>The residents along the road expressed fears that the new road will allow vehicles to move at high speeds which may increase the number of road accidents.</td>
</tr>
</tbody>
</table>
### 16.3 Stakeholder Engagement Programme

Ongoing engagement with stakeholders will ensure that stakeholders receive regular updates on Project activities and the management of social and environmental impacts. Ongoing engagement should include information disclosure by KeNHA prior to any significant Project activities throughout the Project life. Provision of clear and accurate project information (and updates as appropriate throughout the Project) will contribute to building trust and managing community expectations. Local stakeholders should be informed about the:

- Nature, location and purpose of significant upcoming activities.
- Likely impacts the activities will have on them (e.g. restricted access to land, noise generation, and increased traffic) and relevant mitigation measures intended to minimize any negative impacts and likely duration of the activities.

#### 16.3.1 Stakeholder engagement methods

This section outlines the methods that will be used to engage the stakeholders. The KeNHA is committed to a participatory approach when engaging the stakeholders.

**Information disclosure**

To ensure information about the Project is accessible to all stakeholder groups, information may be disclosed in a variety of ways (Table 16:4). All communication and disclosure material will be produced in a culturally appropriate manner. Swahili and English have been identified as the main languages for stakeholder consultations and communication materials, as the majority of people within the affected communities speak Swahili and / or English. If stakeholders do not speak Swahili, translators will be identified during consultations to translate into local languages, as needed. Illustrations and other means of communication must be provided as needed to communicate information to the illiterate.
Table 16:4: Information disclosure methods

<table>
<thead>
<tr>
<th>Information to be disclosed</th>
<th>Method</th>
</tr>
</thead>
</table>
| Information on the Project                                      | • Information leaflets distributed at consultation meetings and made available in key public places  
• Presentations                                                  |
| Project report documents including: ESIA Non-Technical Summary (NTS), ESMP and SEP | • Public consultation on draft ESIA,  
• ESIA publication advertised in local and national media (newspapers and radio)  
• ESIA made available to review on request by public |
| Announcement of project activities and milestones                | • Public meetings to notify stakeholders and explain upcoming works  
• Posters in public places  
• Meetings with relevant local authorities  
• Dissemination of information through community representatives |
| Date, time, venue and purpose of upcoming meeting               | • Meeting invitations sent at least one week prior to meetings  
• Communication with local authorities in advance of any community meetings  
• Meeting minutes and attendee list following each meeting |

Informed consultation and participation

A process of free, prior informed consultation and participation will be undertaken with those stakeholders identified as having a high level of influence on the Project or those who will be significantly impacted by the Project. This process goes beyond simple information disclosure and ensures that stakeholders have the opportunity to have their input considered in the project decision making process and that regular two-way feedback is given between KeNHA and stakeholders. Some of the methods that may be used as part of the informed consultation and participation process are illustrated in table below.

Table 16:5: Summary of methods to be used during the informed consultation and participation process

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Targeted stakeholder</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public meetings</td>
<td>Forum for providing Project information and hosting question and answer session with a large audience. Meetings should be held at community venues which can be easily accessed by the Project’s stakeholders and at convenient times, with sufficient notice. Minutes and attendance taken at all meetings.</td>
<td>Local communities</td>
<td>ESIA Disclosure and Project announcements</td>
</tr>
<tr>
<td>Focused Group discussions</td>
<td>Exchange of information with more targeted groups of stakeholders focused on, for example, livelihood, age or gender.</td>
<td>Local communities</td>
<td>Data collection for impacts mitigation and planning</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
<td>Targeted stakeholder</td>
<td>Phase</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>One to one and small group meetings</td>
<td>Meetings with influential stakeholders and those with access to important baseline information.</td>
<td>Government stakeholders, NGOs and CSOs</td>
<td>Consultation and ongoing discussions for environmental and social management and monitoring activities</td>
</tr>
<tr>
<td>Suggestion boxes installed in centrally located community buildings</td>
<td>Gives local communities the opportunity to provide confidential feedback on project activities</td>
<td>Local communities</td>
<td>All phases</td>
</tr>
<tr>
<td>Post/ phone/ email</td>
<td>Opportunity to ask questions or raise concerns about the Project and environmental and social issues in a timely manner</td>
<td>All stakeholders</td>
<td>All phases</td>
</tr>
</tbody>
</table>

Attendance sheets, meeting note forms and public meeting notices will be used to support the stakeholder engagement process.

**16.3.2 Protocols for consultation and participation**

At the local level, notice of meetings should be given at least one week in advance through phone calls and visits to community representatives who should share the information with the rest of the community, and via distribution of leaflets and posters in public places. Suitable days and times for the meetings should be selected, being sensitive of people’s work and family commitments, and meetings should be conducted in a culturally sensitive manner. Translators should be available to translate into local languages for those that are not fluent in English or Swahili.

For engagement with national level stakeholders, invitations for meetings will be sent at least one week in advance and follow up phone calls with stakeholders should be made to confirm and schedule the meetings.

**16.3.3 Stakeholder engagement tools and materials**

This SEP will be used in conjunction with stakeholder engagement and community relations management tools including:

*Grievance mechanism* – A Complaint and Grievance Procedure provides a mechanism for communities and affected parties to raise complaints and grievances and allows the project to respond to and resolve the issues in an appropriate manner.

*Commitment Register* – This register is in use to record any public commitments made by the Project or public concerns raised about the Project that require action. This register is in addition to the stakeholder register (Appendix 15.4.3. A).

*Engagement Notes Format* (Appendix 15.4.3. B) – To ensure that an accurate and detailed record of information and views are gathered at every stakeholder meeting, a consultation meeting note will be written up. Prior to all consultations, responsibility shall be appointed to one member of the project team to take detailed notes and write up these notes immediately after the consultation using the Consultation Note format.
16.3.4 Timeline for Stakeholder Engagement

Pre-construction

The objectives of engagement during this phase will be to:

- Keep the local community informed about the nature and purpose of pre-construction activities and further environmental and social studies taking place in the local area, respond to questions or concerns about the Project and clarify any unrealistic expectations.
- Notify local stakeholders about the expected project start date and the date from which the Project Area will no longer be accessible to the public. Ensure that stakeholders understand that this means no more crops should be planted within the Project Area after the current growing cycle.
- Introduce stakeholders to the grievance mechanism and how it works.
- Introduce the community to the CLO and explain their role.
- Identify and appoint community intermediaries.
- Inform stakeholders about the project’s recruitment procedures as and when they become available so that the hiring process is clearly understood by local stakeholders before the construction recruitment process begins.
- Manage official engagement with local and national authorities in a timely manner in order to achieve the required project permitting schedule.
- Maintain a record of all consultations and any commitments made and update the stakeholder database.

Construction

The objectives of the engagement during this phase will be to:

- Continue to provide adequate and timely information about the Project; keep local stakeholders updated about the progress of the Project; and, provide sufficient notice before any major activities take place.
- Track and monitor grievances raised to ensure that all issues are closed out in a timely manner and to identify any recurring issues.
- Engage local and national authorities and agencies as required to ensure all necessary permits are obtained and maintained up-to-date.
- Engage local authorities and national agencies as required on specific environmental and social management and monitoring aspects.
- Maintain a record of all consultations and any commitments made and update the stakeholder database.

Operations

It is expected that the Project will last a life time with proper and regular maintenance. The stakeholders will have accustomed to the road project hence there will be minimal engagement at this point. The objectives of the engagement during this phase will be to:

- Maintain indirect communications with the local community through the Chief and community intermediaries. Engage the wider community if/ as necessary to address specific issues.
- Track and monitor grievances raised to ensure that all issues are closed out in a timely manner and to identify any recurring issues.
- Engage local authorities and national agencies as required on specific environmental and social management and monitoring aspects.
- Maintain a record of all consultations and any commitments made and update the stakeholder database.
Decommissioning

In respect to the road project, decommissioning is not anticipated. However, it will be sustained in accordance to transportation demands of the project area. Nevertheless, after the construction period, construction equipment and dismantled camp materials will be salvaged and removed from the site by the contractor. Some of these impacts may be similar to those experienced during the construction phase. The objectives of engagement during this phase will be to inform the stakeholders the reasons for decommissioning and how the process might affect them.

16.4 Responsibilities

16.4.1 Organisational structure

This section presents a recommended organizational structure to support ongoing engagement activities. Roles presented relate to activities and responsibilities, rather than individuals, and may be filled by either existing staff, new staff, and in some cases, consultants. Effective stakeholder engagement requires clear lines of communication and effective coordination within the Project, between the Project and partners and with stakeholders. Key participants in the management of stakeholder engagement include:

i. KeNHA
ii. HCG INFRA LTD construction/operations manager
iii. CLOs
iv. Construction/Operations HSE Supervisors

The above persons will have different responsibilities in ensuring that this SEP is effective and is continuously updated as the project progresses. Table 16.6 below provides a summary of these responsibilities.

Table 16.6: Responsibilities of the key participants in the stakeholder engagement management team

<table>
<thead>
<tr>
<th>Position</th>
<th>Responsibility</th>
</tr>
</thead>
</table>
| KeNHA                            | ▪ Ensuring that the stakeholder engagement strategy is communicated internally and that the staff, resources and systems are in place to enable this SEP to be implemented.  
                                  | ▪ Ensure coordination and consistency across all stakeholder facing activities by all parties.  
                                  | ▪ Ensure the SEP and stakeholder database are regularly updated.  
                                  | ▪ Assist with liaison and communication with key national and local government authorities and agencies.  
                                  | ▪ Plan and attend key consultations as required.  
                                  | ▪ Assist in management of grievance resolution. |
| HCG construction/operations manager | ▪ Ensure the project workforce is briefed in a timely and consistent way about the SEP.  
                                  | ▪ Plan and attend key consultations as required.  
                                  | ▪ Assist in management of grievance resolution.  
                                  | ▪ Report to the Project manager on implementation of the SEP, grievance mechanism, key developments and incidents on a regular basis. |
| CLO                              | ▪ Focal point for communications between local population and the Project management team during pre-construction, construction, commissioning / early operations and decommissioning.  
                                  | ▪ Regular reporting to HSE supervisor, construction/operations manager and project manager about engagement and grievances.  
<pre><code>                              | ▪ Implement and monitor the Grievance Mechanism. |
</code></pre>
<table>
<thead>
<tr>
<th>Position</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Identify community intermediaries and provide training (as required) to enable them to fulfil their role.</td>
</tr>
<tr>
<td></td>
<td>- Record all engagement activities and update the stakeholder database as required.</td>
</tr>
<tr>
<td>Construction/Operations HSE Supervisors</td>
<td>- Supervise CLO and ensure s/he has the necessary resources and information to fulfil her/his role.</td>
</tr>
<tr>
<td></td>
<td>- Provide assistance in planning, scheduling and attending meetings with local statutory and non-statutory stakeholders.</td>
</tr>
<tr>
<td></td>
<td>- Attend quarterly stakeholder engagement review meetings.</td>
</tr>
<tr>
<td></td>
<td>- Assist in management of grievance resolution.</td>
</tr>
</tbody>
</table>

**KEY:** *- Number might change depending on the proponents’ requirements

**Arrows and box:** Unresolved issues, **Arrows:** Notification/reporting and records.

*Figure 16-1: Proposed Organisation structure for the Stakeholder Engagement Plan*
16.5 Monitoring and Reporting

The implementation of the SEP will be monitored on a regular basis. The effectiveness of engagement activities will be evaluated against the goals and objectives set out in the Plan. This evaluation will examine the extent to which activities were implemented in accordance with the Plan and the extent to which they achieved the aims defined here. The SEP will be reviewed on an annual basis to determine its effectiveness and whether it is appropriate. Where necessary the SEP will be update and revised. Quarterly reports should be prepared to keep the key stakeholders informed about the project status and on any other issues or grievances raised within the said period, as per the SEP. The reports should be made available to the public whenever required.
17 GRIEVANCE MECHANISM

17.1 Introduction

The implementation of this project may be faced by some challenges including grievances from stakeholders who may be affected by the different phases of the project. This document outlines the Grievance Mechanism procedures to be followed in the implementation of the road project.

A Grievance Mechanism (GM) – is a management system through which grievances will be resolved following a standard operating procedure (SOP) aligned to other management systems (communication, resourcing, reporting). A grievance mechanism provides a way to reduce risk for projects, offers communities an effective avenue for expressing concerns and achieving remedies, and promotes a mutually constructive relationship. The mechanism should be made readily accessible to the affected communities and allow for the receiving, addressing, recording and documenting of complaints and communications from stakeholders.

The objective of this GM is to ensure that the proponent, KeNHA, has a system in place to address any grievances that may arise from the different stakeholders. Timely redress of grievances is important in ensuring satisfactory implementation of resettlement and completion of the project on schedule. The means of grievance redress have to be accessible and credible to reduce project resistance. This GM is part of 15 Environmental and Social Management plans prepared for this road project, and will form a key component during stakeholder engagement when handling grievances.

17.2 Statutory Applications

The GM is based on the principles set out in the IFC performance Standards which states that where there are Affected Communities, the client will establish a grievance mechanism to receive and facilitate resolution of Affected Communities’ concerns and grievances about the client’s environmental and social performance. This GM has been aligned to the international best practices and takes into account; i) proportionality, ii) cultural appropriateness, iii) accessibility, iv) transparency, v) accountability, and appropriate protection when dealing with the stakeholders grievances.

17.3 Responsibilities

The resolution of grievances is ultimately the responsibility of the KeNHA’s management. Senior management should be supported by Community Liaison Officers (CLOs) who should be responsible for receiving, coordinating, classifying and processing grievances. The CLOs will also be responsible for overall functioning of the Grievance Mechanism and distribution of resolution actions to relevant departments and personnel. The managers, employees, contractors and visitors should be trained on the aspects of the GM with regards to their roles and responsibilities. The responsibilities of different actors in implementing the GM are summarised in table below.

Table 17.1 A summary of the roles and responsibilities of the GM

<table>
<thead>
<tr>
<th>Role/Title</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grievance Owner</td>
<td>• Employee investigating the grievance and liaising with the external stakeholder/s.</td>
</tr>
<tr>
<td></td>
<td>• Developing resolutions and actions to rectify any issues.</td>
</tr>
<tr>
<td></td>
<td>• Follow up and track progress of grievance.</td>
</tr>
<tr>
<td></td>
<td>• Document any interactions with external stakeholders.</td>
</tr>
</tbody>
</table>

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### Role/Title: Stakeholder Contact Officer (CLO)

- Receive grievances and assign a grievance owner.
- Makes sure the grievance mechanism procedure is being adhered to and followed correctly.
- Maintains grievance register and monitor any correspondence.
- Monitor grievances/trends over time and report findings to the Sustainability Committee.
- Raise internal awareness of the grievance mechanism among employees and contractors.

### Role/Title: Employees

- Receive grievances in person.
- Report grievance to the Stakeholder Contact Officer by lodging the Grievance Lodgement Form.
- May provide information and assistance in developing a response and close out of a grievance.

### 17.4 Grievance Redress Committee and its Procedures

Grievance redress mechanisms (GRMs) can be an effective tool for early identification, assessment, and resolution of complaints on projects. A Grievance Redress Committee (GRC) will be established with representatives from each of the stakeholders from the above list. The proposed leadership of the Grievance Redress Committee should have official quorum of 80% to transact business. After approval of this GRM, the above GRC members shall receive letters of appointment from the Project Manager to serve in the committee for a given period of time and their terms of references.

The main role of the Committee will be arbitration through mediation and negotiation when complaints arise to ensure that cases are resolved quickly and fairly. The above committee shall meet once per month and may form special sub-committees or ad-hoc committee that shall meet on a weekly basis or more frequently as the nature of some grievances may demand. Such sub-committees or special ad-hoc committee will report their findings and recommendations to the main committee for ratification or approval.

Through consultations between the Chair and Secretary, complaints received shall be transferred to the concerned sub-committee within three (3) working days. In case the complaint pertains to an activity of more than one sub-committee or it is a complex issue, then the complaint shall be communicated to the main committee members in advance and resolution time shall not exceed thirty (30) days from the date of the receipt of the complaint from the complainant.

- The project proponent shall facilitate the operations of the above committee in terms of finances and logistics.
- The Grievances shall be presented in person orally, over the phone, online via email, Short Message Service (SMS) using mobile communication systems or in writing, or other means of communications which provide a record of the compliant whichever the aggrieved party finds appropriate. All complaints must be recorded in a grievance register (Appendix 16.6.1).
- An Acknowledgement Form (See Appendix 16.6.2) shall be sent to the complainant within two (2) working days of the receipt of the grievance. A simple digital database will also be created to store the cases so as to make work easier and reduce paper work.
- All grievances shall be addressed to the CLO of the Project who shall be a full-time community liaison expert to be stationed at the project premises or any other nearby
 premises. All grievances shall be entered into a log book/register and assigned file numbers for easier handling and tracking of the progress of each case.

- A deadline should be set after notification of entitlements beyond which no more complaints will be accepted so as to expedite the process of livelihood restoration. During and after receipt of complaints, the committee will have monthly or regular meetings to deliberate upon the complaints lodged in consultation with the complainants, and to offer alternatives where feasible to the issues raised.
- Complainant’s grievances will be managed by Grievance Register where they are in agreement with the resolutions. The redress process should take at most 4 weeks per case and cases can be resolved concurrently.

17.5 Grievance Channels

Several modes of airing the grievances are available with the current advancement of technology. The proponent should make available these methods to suit different literacy levels of the project stakeholders. Some of these channels are summarized in Table below.

*Table 17.2: Summary of stakeholders and some examples of available communication channels*

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Consultation Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government officials (both County and National</td>
<td>- Phone / email / text messaging</td>
</tr>
<tr>
<td>government)</td>
<td>- One-on-one interviews</td>
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<td></td>
<td>- Formal meetings</td>
</tr>
<tr>
<td>Vulnerable Groups</td>
<td>- Print media, text messaging and radio announcements</td>
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<tr>
<td></td>
<td>- Public meetings</td>
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<tr>
<td></td>
<td>- Focus group meetings</td>
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<tr>
<td></td>
<td>- Surveys</td>
</tr>
<tr>
<td></td>
<td>- Information Centre</td>
</tr>
<tr>
<td>Neighbouring communities</td>
<td>- Print media, text messaging and radio announcements</td>
</tr>
<tr>
<td></td>
<td>- Public meetings</td>
</tr>
<tr>
<td></td>
<td>- Focus group meetings</td>
</tr>
<tr>
<td></td>
<td>- Surveys</td>
</tr>
<tr>
<td></td>
<td>- Information Centre</td>
</tr>
<tr>
<td>NGO’s and conservation organizations</td>
<td>- Phone / fax / email / text messaging</td>
</tr>
<tr>
<td></td>
<td>- One-on-one interviews</td>
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<tr>
<td></td>
<td>- Focus group meetings</td>
</tr>
<tr>
<td></td>
<td>- Information Centre</td>
</tr>
<tr>
<td>Employees and managers</td>
<td>- Phone / fax / email / text messaging</td>
</tr>
<tr>
<td></td>
<td>- Print media and radio announcements</td>
</tr>
<tr>
<td></td>
<td>- Workshops</td>
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<tr>
<td></td>
<td>- Focus group meetings</td>
</tr>
<tr>
<td></td>
<td>- Surveys</td>
</tr>
</tbody>
</table>
17.6 Grievance Mechanism Procedure

The GM Procedure is divided into seven stages.

**Step 1: Grievance Identification**
Stakeholders are able to lodge grievances in writing using the Grievance Register (See Appendix 16.6.1). If a stakeholder is unable to submit a written grievance, they can submit a grievance verbally and the CLO should record the grievance on their behalf. All grievances identified or received by Project personnel should be referred to the CLO.

**Step 2: Registration and Categorization**
All grievances received should be recorded by the CLO in the Grievance Register as soon as possible and within at least 24 hours of receipt. The Grievance Log is expected to be developed in Microsoft Excel and used for logging, tracking and managing the Grievance Mechanism. This should assist in tracking overall trends and patterns in concerns, allowing emerging issues to be flagged and understood at an early stage. The grievances will later be categorized as Low, Medium and Critical Priority Grievance and appropriate action taken as illustrated in Table below.

*Table 17:3: A summary of grievance categories and responses*

<table>
<thead>
<tr>
<th>Grievance Priority</th>
<th>Description</th>
<th>Response time frame (days)</th>
<th>Type of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low priority complaint</td>
<td>A local, isolated or one-off complaint that is not expected to result in (a) major environmental and/or social risk(s).</td>
<td>14</td>
<td>CLO to coordinate internal response to Complaint</td>
</tr>
<tr>
<td>Medium priority complaint</td>
<td>Widespread and/or ongoing complaint, e.g. noise, vibration and dust during construction and/or a complaint that could lead to (a) moderate environmental and/or social risk(s).</td>
<td>7</td>
<td>HSE Supervisor and relevant team</td>
</tr>
<tr>
<td>Critical priority complaint</td>
<td>Potential for significant breach of KeNHA policies (including national permits and international conventions that KeNHA is committed to complying with) and/or negative media attention.</td>
<td>3</td>
<td>Senior management: (Construction manager and KeNHA manager arrange priority to team to investigate the complaint as a matter of urgency. The manager may decide to halt activities for the</td>
</tr>
</tbody>
</table>
### Grievance Priority Table

<table>
<thead>
<tr>
<th>Grievance Priority</th>
<th>Description</th>
<th>Response time frame (days)</th>
<th>Type of response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>investigation to be completed and mitigation determined</td>
</tr>
</tbody>
</table>

**Step 3: Acknowledgement**

A grievance will be acknowledged, by the grievance owner, within two working days of a grievance being submitted. Regardless of the method used, stakeholders will be notified (in writing or verbally) that their grievance has been received and logged. Information should be provided on the next course of action and an indicative timeframe for resolution. The Acknowledgement Form (Appendix 16.6.2) should be updated to record that this step has been completed.

**Step 4: Investigation and Consultation**

Following assignment of a grievance to an appropriate owner/employee or team, an investigation should be conducted into the issue raised, including consultation with the concerned person(s) and relevant company representatives. The investigation may require the grievance owner/employee to make site visits, consult employees, contact external stakeholders and complete other activities. Records of meetings, discussions and activities all need to be recorded during the investigation. The CLO or an appropriate manager should work in collaboration with the assigned employee or team to identify measures to resolve the grievance as appropriate. The CLO should notify the complainant if additional time is required to resolve the grievance. The results of the investigation and proposed resolution should be entered into the Grievance Log. It should be noted that in some cases, KeNHA may determine that it is not the appropriate party to resolve the dispute, in which case, KeNHA may refer the complainant to an alternative party.

**Step 5: Communication of Resolution**

The CLO should communicate the outcome of the investigation to the complainant and request feedback on the resolution. This initial response should include a summary of what is planned and when it is likely to be implemented, or an explanatory note clarifying why action is not required. The response should be in writing, although a verbal response should also be provided where appropriate. Stakeholders submitting the grievance should be asked to give their feedback on the proposed course of action. If the response is accepted, the actions to resolve the grievance should be implemented by the relevant parties and recorded in the Grievance Register. If feedback is negative, negotiation meetings should be organized in order to reach agreement. All actions should be logged.

**Step 6: Recourse to Third Party**

If resolution cannot be achieved, KeNHA should consider establishing an amicable resolution mechanism through setting up a Conflict Resolution Committee. This should be comprised of company representatives and local representatives to settle disputes amicably and in a
culturally appropriate manner for management of complex grievance issues. The emphasis is on an amicable settlement between KeNHA and complainant regarding a grievance, and an amicable settlement is encouraged throughout the process. If still unresolved, the dispute should ultimately be sent to the relevant national body.

**Step 7: Effectiveness Review**

When corrective actions are agreed upon by KeNHA and a complainant, the Construction/Operations Manager will be responsible for ensuring corrective actions are implemented. The CLO should inform stakeholders on the progress of implemented corrective actions. If no further attention is required, then the CLO and an assigned senior employee can close the grievance and record this in the Grievance Register. Final decisions and details of closed grievances rated critical should be approved and signed by the KeNHA Project Manager.

**17.7 Mechanism for Appeal**

If the external stakeholder is unhappy with the resolution and/or does not agree with the proposed actions, then the employee/CLO needs to escalate the matter to the KeNHA Senior management team. The senior management team will review the grievance and all documentation gathered throughout the investigation and determine whether further actions are required to resolve the grievance. KeNHA are fully committed to resolving an external stakeholder’s grievance so if KeNHA are unable to resolve a complaint or a stakeholder is unhappy with the outcome, KeNHA may seek advice from other independent parties.

These disputes may be referred to a registered and licensed Arbitrator practicing in Kenya and the arbitration shall be governed by the Kenya Constitution 2010, the Arbitration Act (Chapter 49 of the Laws of Kenya). Arbitration agreements shall be enforced by the courts, which have the power to refer a dispute to arbitration.

**17.8 Monitoring and Reporting**

The monitoring is meant to check on responsiveness towards the complaints lodged. Performance indicators will be formulated based on the process, outputs and impacts. Details such as response times, communication methods employed, costs involved, treatment of women and other vulnerable groups and PAPs satisfaction shall be used as indicators. Ideally, grievance redress should be undertaken at zero cost to the complainant and as speedily as possible so as not to hurt the complainant and not to delay the onset of project implementation.

The complainant shall be intimated on resolution of grievance through a resolution form. The resolution form shall contain the date of receipt of grievance, unique grievance number, name, designation and contact details of officer signing the communication, procedure of representing the matter and further right to approach other legal levels in case of non-satisfactory resolution of grievance, within the time specified in the regulation.

All records of reported complaints, their nature and number of complainants, number of follow-ups by complainants either in person or via phone and other approved means and concluded resolutions or actions taken if unresolved and the average time taken to resolve grievances should be kept and made available to the project monitoring team. It shall be the mandate of KeNHA through the liaison office and any other relevant office to keep records for annual reporting and for future use of the project.

**17.9 Closure of Grievance**

KeNHA will ensure that all grievances are resolved and closed within a period of 30 days from the day of receipt. A grievance shall be considered as disposed of and closed;

- When the intermediary has acceded to the request of the complainant fully
- Where the complainant has indicated in writing, the acceptance of the response of the intermediary
- Where the complainant has not responded within forty-five (45) days of the receipt of the written response of the intermediary
- Where the grievance redress committee has certified under indication to the subscriber that the intermediary has discharged its contractual, statutory and regulatory obligations and therefore closes the complaint
- Where the complainant has not preferred any appeal within fourteen (14) days from the date of receipt of resolution or rejection of the grievance communicated
- Where the decision of the appeal has been communicated to such complainant
18 CONCLUSION

It is evident that the implementation of this road project will generate several environmental and social impacts which can adversely affect the neighbouring community. It was therefore necessary to develop mitigation measures which will be aimed at minimising the effects of these impacts. The development of these Management Plans was aimed at proposing mitigation measures and their implementation timelines to act as a guide for the proponent. This will ensure that all the concerns by different stakeholders are adequately addressed thereby increasing the acceptability of the project by the local community.
REFERENCES


APPENDICIES

APPENDIX 7.8.3. WATER QUALITY MONITORING FORM

Surface Water Quality Monitoring Event Record

<table>
<thead>
<tr>
<th>Project: Modogashe-Habasweini-Samatar Road</th>
<th>Date: 04/11/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record rainfall for previous 24 hours: Rainfall mm</td>
<td></td>
</tr>
</tbody>
</table>

Upstream Monitoring Location: SC1a

<table>
<thead>
<tr>
<th>#</th>
<th>Field Analysis</th>
<th>Result</th>
<th>MaxB*</th>
<th>MinB*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>NTU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Electrical Conductivity (EC) mS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Dissolved Oxygen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Is oil and/or grease visible on the surface of the water?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Downstream Monitoring Location: SC1b

<table>
<thead>
<tr>
<th>#</th>
<th>Field Analysis</th>
<th>Result</th>
<th>MaxB*</th>
<th>MinB*</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>pH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>NTU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Electrical Conductivity (EC) mS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Dissolved Oxygen</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td>Is oil and/or grease visible on the surface of the water?</td>
<td></td>
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</tr>
</tbody>
</table>

Interpretation

11. What is the % difference between upstream and downstream? If greater than 20% assess against MaxB and MinB

12. If NTU, EC or pH are 20% higher than MaxB, undertake investigation. If DO or pH are 20% lower than MinB, undertake investigation.

Investigation

13. Undertake detailed site investigation to identify and record potential sources for non-conformances with Water Quality Objectives. Report directly to Environmental Manager.

Additional comments:

Conducted by:

MaxB = Maximum concentration recorded during background water quality monitoring.

*MinB= Minimum concentration recorded during background water quality monitoring.
## Appendix 15.4.3.A:
Commitment register

<table>
<thead>
<tr>
<th>Commitment ID</th>
<th>Commitment name or project request</th>
<th>Date</th>
<th>Contact person and details</th>
<th>Recipient community</th>
<th>Project description</th>
<th>Related comments and location</th>
<th>background</th>
<th>Related risk</th>
<th>Project cost</th>
<th>Follow up action, date &amp; task owner</th>
<th>Outcome</th>
<th>Signed Off</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
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## Appendix 15.4.3.B:

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**Engagement notes format**

<table>
<thead>
<tr>
<th>Engagement notes</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location</td>
</tr>
<tr>
<td></td>
<td>Team Leader</td>
</tr>
<tr>
<td></td>
<td>Participants</td>
</tr>
</tbody>
</table>

General notes

Key points learned

Follow up steps/clarification

---

**Appendix 16.6.1:**
## Grievance register

<table>
<thead>
<tr>
<th>Ref No</th>
<th>Date</th>
<th>Name</th>
<th>Personal details(phone/mail)</th>
<th>Grievance description</th>
<th>Date of grievance</th>
<th>Regularity of happening (once/more)</th>
<th>Expected resolutions</th>
<th>Action identified to solve the grievance</th>
<th>Date taken and by who</th>
<th>Satisfactory of the complainant (YES/NO)</th>
<th>If no why?</th>
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</table>

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Appendix 16.6.3: 
Acknowledgement form

<table>
<thead>
<tr>
<th>Date</th>
<th>Details of complaints</th>
<th>Grievance number</th>
<th>Expected resolution date of grievance</th>
<th>Name</th>
<th>Designation</th>
<th>Contacts details of the officer</th>
</tr>
</thead>
<tbody>
<tr>
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