ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT FOR THE PROPOSED DEVELOPMENT OF A FUNERAL HOME ON PLOT TITLE NO. MAKUENI/UNOA/5794 ALONG WOTE-MAKINDU ROAD IN KWA NGULUE AREA WITHIN WOTE TOWNSHIP IN MAKUENI COUNTY

GPS COORDINATES:

LATITUDE: -1.80967°S

LONGITUDE: 37.624848°E

Prepared in Accordance With:

- Environmental Management and Co-ordination Act Cap 387
- Environmental (Impact Assessment and Audit) Regulations, 2003
- Legal notice 31of 2019

PREPARED BY:	PROJECT PROPONENT
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NOVEMBER 2022

CERTIFICATION

This Environmental and social Impact Assessment report has been prepared by **Green Builders & Planning Consultants Limited** (NEMA Reg. No. **9571**) in accordance with the Environmental Management and Coordination Act Cap 387, the Environmental (Impact Assessment and Audit) regulations 2003 and legal notice 31 of 2019 which requires everybody undertaking a project specified in legal notice 31 to undertake and Environmental Impact Assessment(EIA) for submission to the National Environmental Management Authority (NEMA) for licensing. We the undersigned, certify that the particulars in this report are correct and righteous to the best of our knowledge.

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PROJECT PROPONENT:

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Signature……..……Date……...……

ACKNOWLEDGEMENT

This ESIA has been prepared as an endeavor to comply with the legal requirements as stipulated in the Environmental Management and Coordination Act, EMCA CAP 387, the Environmental (Impact Assessment and Audit) Regulations, 2003 and legal notice 31 of 2019. Green Builders &Planning Consultants Limited takes this opportunity to thank the Proponent for contracting us to conduct this Environmental and Social Impact Assessment (ESIA)

We further register our gratitude to the various stakeholders consulted during stakeholder/public participation for their invaluable contribution, support and cooperation. Their input contributed enormously towards successful completion of this ESIA report.

DISCLAIMER

This ESIA project report is strictly confidential to Daniel Kioko Kasangi (the Proponent) and any use of the materials thereof should strictly be in accordance with the agreement between the client and the EIA/EA consultants mentioned herein (Green Builders &Planning consultants Limited). It is however, subject to conditions spelt out in the Environmental (Impact Assessment and Audit) Regulations 2003. It provides information on the proposed project as per the time of the assessment.

FACT SHEET

Assignment Name	Environmental Impact Assessment Study Report
Type of Facility	Proposed Funeral Home
County	Makueni
Location	Plot Title No. Makueni/Unoa/5794 along Wote-Makindu road in Kwa Ngulue area within Wote Township in Makueni County
GPS Coordinates	-1.80967°S, 37.624848°E
Project Proponent	Daniel Kioko Kasangi
Address of the Proponent	P.O Box 105-90125 Kikima
Project description	The proposed development will comprise of a single storey funeral home with the following; **Ground floor:** comprising of an entry, lobby area, reception, office, chapel, flowers store and preparation rooms, Ante room, cold chamber, store, mechanical room, water closets and garage section **First floor:** will have a reception, chapel, flower storage and preparation, mechanical room, cold chamber, selection room, offices (2) and water closets **Incinerator:** funeral homes produce different types of waste. Each category should be properly disposed to safeguard the professionals working in the facility as well as the general society. Management of biohazardous waste from the funeral home is critical in successful waste management. Wastes such as sharps i.e., needles, and the scalpels or scissors used for preparing the deceased, medications, Gauze and hospital gowns accompanying bodies transported from hospitals or care facilities could carry tissue, blood, germs, or bodily fluids, plastic aprons and arm covers, swabs, masks, disposable gloves, gauze and tubing. All the medical waste will be disposed through incineration. **Other amenities include;** • adequate parking and driveways, • water storage tanks for harvested rain water • lawns, External toilets, Septic tank and soak pit

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ACRONYMS AND ABBREVIATIONS

EIA - Environmental Impact Assessment

EA - Environmental Audit

EHS - Environmental Health and Safety

EMCA - Environmental Management and Coordination Act

ESMP - Environmental and Social Management Plan

HA - Hectares

KM – Kilometres

KPLC - Kenya Power and Lighting Company

MOH - Ministry of Health

NEAP - National Environmental Action Plan

NEMA - National Environment Management Authority

NPEP - National Poverty Eradication Plan

OHS - Occupational Health and Safety

PEC - Poverty Eradication Commission

PPE - Personal Protective Equipment

PRSP - Poverty Eradication Strategies Paper

SQM – Square Metres

SWM – Solid Waste Management

TOR - Terms of Reference

VAT - Value Added Tax

WRA - Water Resources Authority

WSSD - World Summit for Social Development

APM - Applicant Proposed Measures

DEFINITION OF ANALYTICAL TERMS

Environmentally Sound Design: Is the design and implementation of activities and projects such that the environmental harm associated with a particular development objective is kept to a practicable minimum.

Positive Impact: A change which improves the quality of the environment (for example by increasing species diversity; or improving the reproductive capacity of an ecosystem; or removing nuisances; or improving amenities).

Neutral Impact: A change which does not affect the quality of the environment.

Negative Impact: A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or property or by causing nuisance.

Significant impact: An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.

Profound impact: An impact which obliterates sensitive characteristics.

Do-Nothing Impact: The environment as it would be in the future should no development of any kind be carried out.

Indeterminable Impact: When the full consequences of a change in the environment cannot be described.

Irreversible Impact: When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.

Residual Impact: The degree of environmental change that will occur after the proposed mitigation measures have taken effect.

Synergistic Impact: Where the resultant impact is of greater significance than the sum of its constituents.

Worst Case Impact: The impacts arising from a development in the case where mitigation measures substantially fail.

Cumulative impacts: Are identified as impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions.

Indirect impacts: Are defined as impacts on the environment which are not a direct result of the project, possibly produced some distance away from the project or as a result of a complex pathway.

EXECUTIVE SUMMARY

Once death has been determined to have occurred, in most cultures around the world there are certain rituals and ceremonies that take place, much of which revolves around caring for the body, the afterlife as well as the disposal of the corpse. Most societies dispose off their dead through certain rites according to spiritual traditions developed and passed down through the generations.

The project proponent, Mr. Daniel Kioko Kasangi is proposing to develop a funeral home On Plot Title No. Makueni/Unoa/5794 along Wote-Makindu road in Kwa Ngulue area within Wote Township in Makueni County. The funeral home will offer various services to the community including; preservation and embalming of human bodies, washing and dressing, postmortem, post embalming cosmetology, reconstruction of bodies, hearse services with lowering gear and public address system, flowers and wreaths, coffins, burial permits and counselling services.

For a long time, the world over, policy makers directed all the efforts in economic development without due regard to the resource base on which the economic development depend on. As a result, there has been unprecedented environmental degradation due to lack of environmental conservation resulting to unsustainable development. More recently, investors and developers, spurred on by regulators world over, have recognized the need for change in order to safeguard the environment.

Reference to this, environmental concerns have now been integrated in the planning and implementation processes of any proposed projects in Kenya. The key objective is to mitigate conflicts with the environment at the vicinity during implementation and operation phases. In addition, it is now mandatory for Environmental Impact Assessment (EIA) to be undertaken on projects of such magnitude and nature; to enhance Sustainable Environmental Management as well as controlling and revitalizing the much-degraded environment. The environmental management is regulated by the National Environmental Management Environment (NEMA) in Kenya.

Pursuant to the prevailing legal requirements as envisaged in the Environmental Management and Coordination Act (EMCA), CAP 387 and to ensure sustainable environmental management, the proponent undertook this study on the proposed project's site; and incorporated substantial environmental aspects as advised by NEMA. This ESIA report thus provides relevant information and environmental considerations on the project proponent's intention to seek approval from NEMA for the development of the proposed project. Environmental Experts who are registered by the Authority conducted the assessment

Socio-Economic (Positive) Impacts of the Project

The proposed project has positive impacts to both the proponent and society in general. The benefits will be experienced during planning, construction and occupation phases. They include the following:

(a) Provision of high quality and affordable funeral services

(b) The optimal use of land i.e., increased utility of the parcel of land, which is currently underutilised.

(c) Boost local investment; to both government and the proponent.

(d) Creation of market for goods and services i.e construction inputs

(e) Provision of employment opportunities

Project Cost Estimate

The proponent has undertaken a preliminary estimate of the total project cost using experienced consultants. The estimated total project cost is approximately twenty-two million, six hundred and seventy-seven thousand, five hundred and thirteen Kenya shillings only (KShs. 22,677,513.00).

Issues of concern associated with project implementation

Against the background of the above positive impacts, there are a few issues of concern anticipated from the implementation of the subject project. These shall be experienced during implementation, operation/occupation and decommissioning phases. They include air quality; noise; oil wastes; strain on water resources; solid and liquid waste management; drainage, traffic; public comfort; occupation, health and safety (OHS); and energy.

Proposed potential mitigation measures

To minimise the occurrence and magnitude of the negative impacts, mitigation measures have been proposed against each of the anticipated impacts. Other measures have been integrated in the project designs with a view to ensuring compliance with applicable environmental laws and guidelines. The measures include the following:

(a) Maintaining the cleanliness of the funeral home at all times.

(b) Minimizing strain on water supply (surface and groundwater sources) by, employing water conservation measures such as water reuse, rainwater harvesting, use of runoff, and reduction or avoidance on misuse of water.

(c) Reducing noise pollution through:

    i) sensitising workers on the need to switch off engines whenever possible;

ii) investing in human resource as opposed to machines

(d) Workers should be provided with full personal protective gear (PPE) to safeguard their health and safety; and, they should be sensitised on health, safety and environmental conservation aspects.

(e) Provision of sound waste management systems and procedures. This includes reduction, reuse, recycling and collection of all non-hazardous solid waste in a waste collection cubicle. The waste should then be collected and transported by a NEMA licensed waste handler to a licensed dumpsite. The biohazardous waste will be disposed through incineration on site.

(f) Lastly, where drain channels are considered in the design, they should be well-designed and installed to harmonise management of the resulting storm water within the site. During operation phase, they should be regularly maintained and covered with gratings to avoid accidents and dirt entry.

(g) To safeguard against environmental and human health and safety risks, effective emergency response plans should be adapted during both construction and operation phases.

(h) Adapt the proposed Environmental Management and Monitoring Plans involving all relevant stakeholders during implementation phase and inhabitants, during operation phase.

Conclusion and Recommendations

The analysis of the EIA study indicates that the proposed project has significant benefit to the local and national health sector. The analysis reveals that the benefits far outweigh the associated costs and negative impacts. The benefits include provision of funeral services, increase utility of the land, creation of employment opportunities especially during project implementation phase, increase in government revenue and improvement of local standards of living. Nevertheless, the project will come with some negative impacts such as increased pressure on existing infrastructure, increased waste (solid and liquid) generation, air pollution and effect on ecology (flora) and fauna.

In relation to the proposed mitigation measures that will be incorporated during implementation and occupation phases; the project's input to the Kenya's health sector; and cognizance of the fact that the project proponent is environmentally conscious**,** the subject project is beneficial and important for the community. It is our recommendation that the proponent be granted EIA license to implement the project. Major concerns should nevertheless be geared towards minimizing the occurrence of impacts that would degrade the general environment. This will however be overcome through close following and implementation of the outlined Environmental and Social Management and Monitoring Plans (ESMPs); which have been strategically packaged with key environmental sustainability elements, tailored toward enhancing the adoption of *Integrated Ecosystem Management (IEM)*. This will form the (now) widely accepted keystone of the environmental action agenda

CHAPTER ONE: INTRODUCTION

1.1 Background information

In African society the conception of death is intricately tied to life, in fact they are not mutually exclusive concepts but exist in a continuum. Thus, according to many traditions throughout continental Africa, death is merely a rite of passage through to another plain of existence, a transition which does not alter or end the life or change the temperament of a person, but only causes a change in its form. This is expressed in the idea of "ancestors," individuals who have died but who continue to "live" in the community and commune with their families. The goal of death is to become an ancestor. For this reason, individuals must be given an "accurate" burial, bounded by abundant religious formalities.

For many years in post-independent Kenya, the task of preparing the deceased for burial, cremation and so on was largely left to Government run hospitals and mortuaries and a few large private hospitals that had their own mortuaries. However, in 1990's, Montezuma Funeral Services joined the industry in what was then a fairly bold move. For the first time, an African was ignoring all the inherent taboos associated with the dead and going into the business of transporting and burying the dead for a fee. Today various stakeholders characterize the funeral industry. The influx into this industry may have been fuelled by among other factors the increasing rate of deaths in Kenya.

The project proponent, Mr. Daniel Kioko Kasangi is proposing to put up a funeral home on Plot Title No. Makueni/Unoa/5794 along Wote-Makindu road in Kwa Ngulue area within Wote Township in Makueni County. The funeral home will offer services such as; preservation and embalming of human bodies, washing and dressing, postmortem, post embalming cosmetology, reconstruction of bodies, hearse services with lowering gear and public address system, flowers and wreaths, coffins, burial permits and counselling services.

Environmental Impact Assessment (EIA) is one of the main legislative tools recognized to reduce anthropogenic impacts on the environment. EIA can be defined as "a process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the relevant decision-making body before a decision is given on whether the development should go ahead.

This assessment thus provides information on the baseline conditions of the area, project description, location, anticipated impacts at all phases of the project among other requirements in pursuant to the Environmental (Impact Assessment and Audit) Regulations, 2003.

1.2 Objectives of the ESIA

Environmental and Social Impact Assessment (ESIA) is a process having the ultimate objective of providing decision makers with an indication of the likely environmental consequences of a proposed activity. The main objectives of this ESIA therefore include the following:

(a) To determine environmental and social compatibility of the proposed project

(b) To identify and evaluate the significant environmental and social impacts of the project

(c) To evaluate and select the best project alternative from the options available

(d) To incorporate environmental and social management plans and monitoring mechanisms

(e) To assess the environmental costs and benefits of the project to the society

The objective is based on ensuring that the environmental concerns are integrated in the proposed project activities in order to contribute to the overall sustainable development. Other objectives include;

- To identify potential environmental and social impacts of proposed project; both positive and negative
- To assess the significance of these impacts to the environment and other stakeholders
- To assess the relative importance of the impacts of alternative plans to the proposed project.
- To propose mitigation measures for the significant negative impacts of the proposed project on the environment and all involved stakeholders.
- To propose measures that will enhance the positive impacts of the proposed project to the environment and all involved stakeholders
- To generate baseline data for monitoring and evaluation of how well the mitigation measures are being implemented during the proposed project cycle;
- To present information on the impact of alternatives;
- To present results of the ESIA in such a way that they can guide informed decision

1.3 Terms of Reference (TOR)

This Environmental and Social Impact Assessment considered the following aspects and others that proved of significance during the study.

(a) To hold appropriate meetings with the project proponent to establish the procedures, define requirements, responsibilities and a time frame.

(b) To produce an ESIA report that contains among other issues potential negative and positive impacts and recommendations of appropriate mitigation measures to minimize or prevent adverse impacts

(c) To carry out a systematic environmental assessment study at the proposed project site and the surrounding area.

(d) To provide a description of the proposed activities throughout the entire implementation process of the project with a special focus on potential impacts to the surrounding environment and facilities.

(e) To develop an Environmental and Social Management Plan for the proposed project.

1.4 Scope of ESIA Study

The study was conducted to evaluate the potential and foreseeable impacts of the proposed development. The physical scope is limited to the proposed site and the neighbouring areas/environment as they may be affected by or may affect the proposed project. Any potential impacts (localized or delocalized), are also evaluated as guided by EMCA Cap 387 and the Environmental (*Impact Assessment and Audit*) Regulations 2003.This study report includes an assessment of impacts of the proposed sites and its environs with reference to the following;

(a) Description of the proposed project

(b) Baseline information (Biophysical and Socio-Economic environment, land use and zoning approval, etc.).

(c) Assessment of the potential environmental impacts on the project area.

(d) A review of the policy, legal and administrative framework.

(e) Development of the mitigation measures and future monitoring plans.

(f) Proposition of alternatives.

(g) Occupational Health and Safety -OHS

1.5 Methodology

Following a preliminary visit of the proposed site, the following was undertaken: -

(a) Screening of the project, a process that identified the project as high risk.

(b) A scoping exercise that identified the key issues to be addressed in the assessment.

(c) Documentary review on the nature of the proposed activities, policy and legal framework, environmental setting of the area and other available relevant data/information.

(d) Public participation and consultation-detailed discussions with the immediate neighbours/interested stakeholders, proponent and specialists

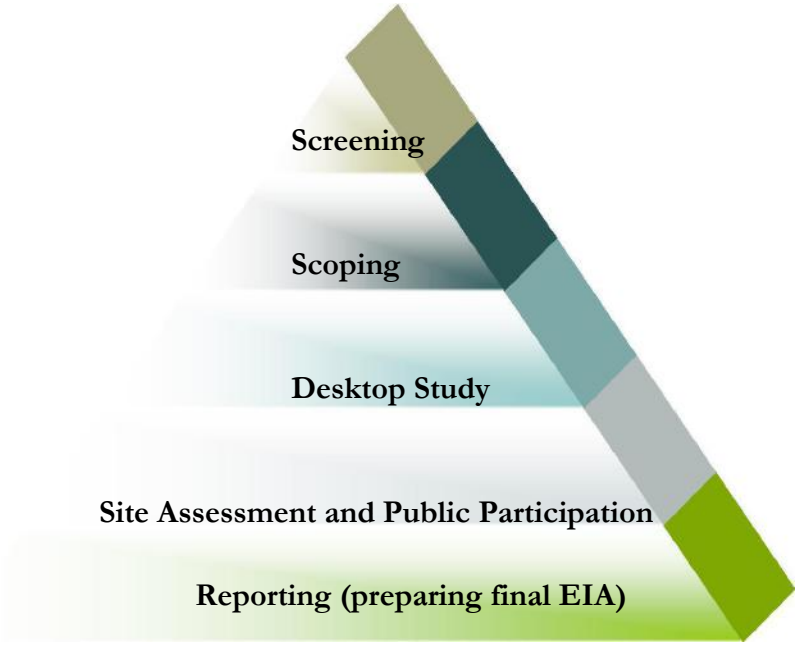
(e) Physical investigation of the site and the surrounding areas using a pre-prepared checklist identifying possible environmental and human safety issues that are likely to be affected,

(f) Reviewing the proposed project designs and implementation plan/schedules with a view to suggesting suitable alternatives,

(g) Developing an environmental and social management plan outline with responsibilities, schedules, monitorable indicators and time frames among other aspects,

A comprehensive report including issues as listed in the Environmental (Impact Assessment) Regulations 2003.

An outline of the basic EIA steps that were followed during this assessment is as follows:



Screening is the first step in EIA Study. It enables the project developers to decide early at planning and design stage whether an Environmental Social Impact Assessment (ESIA) study will be required or not. "Scoping" on the other hand ensures that the ESIA study addresses all key environmental and social issues of importance to the decision makers. It involves deliberations of environmental issues with the project stakeholders including project developers, decision makers, the regulatory agency, concerned government departments, local community leaders, and other concerned to ensure that all environmental and social issues and concerns are discussed and key environmental and social impacts are identified.

Desktop study includes documentary review on the nature of the proposed activities, project documents, designs policy and legislative framework as well as the environmental setting of the area while site assessment and public participation include field visits and community engagement to build and maintain over time a constructive relationship with the community.

CHAPTER TWO: THE PROPOSED PROJECT DESCRIPTION

2.1 Project Proponent

The project proponent is Daniel Kioko Kasangi of P.O BOX 105-90125 Kikima.

2.2 The project site location and neighborhood character

The proposed project is located on Plot Title No. Makueni/Unoa/5794 along Wote-Makindu road in Kwa Ngulue area within Wote Township in Makueni County. The site lies between Kunoa and Kivandini shopping centres approximately 2 Kilometers from Wote town on GPS coordinates -1.80967°S, 37. 624848°E. Wote town, the capital of Makueni County municipality is rapidly urbanizing majorly due to its geographical position along the busy Machakos-Wote road and Wote-Makindu road. The town has a population of 56,419 people as per 2019 census.

Currently, the proposed project site is occupied by a temporary structure (site office) and some piles of construction materials (sand and stones).

The developer has obtained a change of user from agricultural land to commercial to accommodate the proposed funeral home.

The project neghborhood comprises of mixed-use developments as follows;

a) Agricultural use; generally, land use in this area is zoned for agricultural use with rural residential set up. Several homesteads were noted several meters from the proposed project site.
b) Commercial developments; the proposed site neighbourhood has existing commercial developments such as the Makueni Funeral Home and woodland gardens hotel
c) Offices development; offices such as Athiani Housing cooperative society Ltd and the Muungano Party are situated less than 700 meters from the proposed site.
d) Institutions; learning institutions ranging from primary, secondary and tertiary levels include; Muambani Secondary school, Makueni girls and Wote technical Institute
e) Shopping centers; Kunoa and Kivandini shopping centres

The proposed development is appropriate due to the ever-increasing population within the municipality and around the whole county. It will without doubt provide improved funeral services and create employment to the community.

Images of the site and characteristic of the project neighborhood are shown below.



Figure 1,2&3; the proposed construction site Source: Field survey (29th September 2022)



Figure 4,5 &6: immediate site neighborhood Source: Field survey (29th September 2022)



Figure 7,8 &9: various homesteads neighboring the proposed site Source: Field survey (29th September 2022)

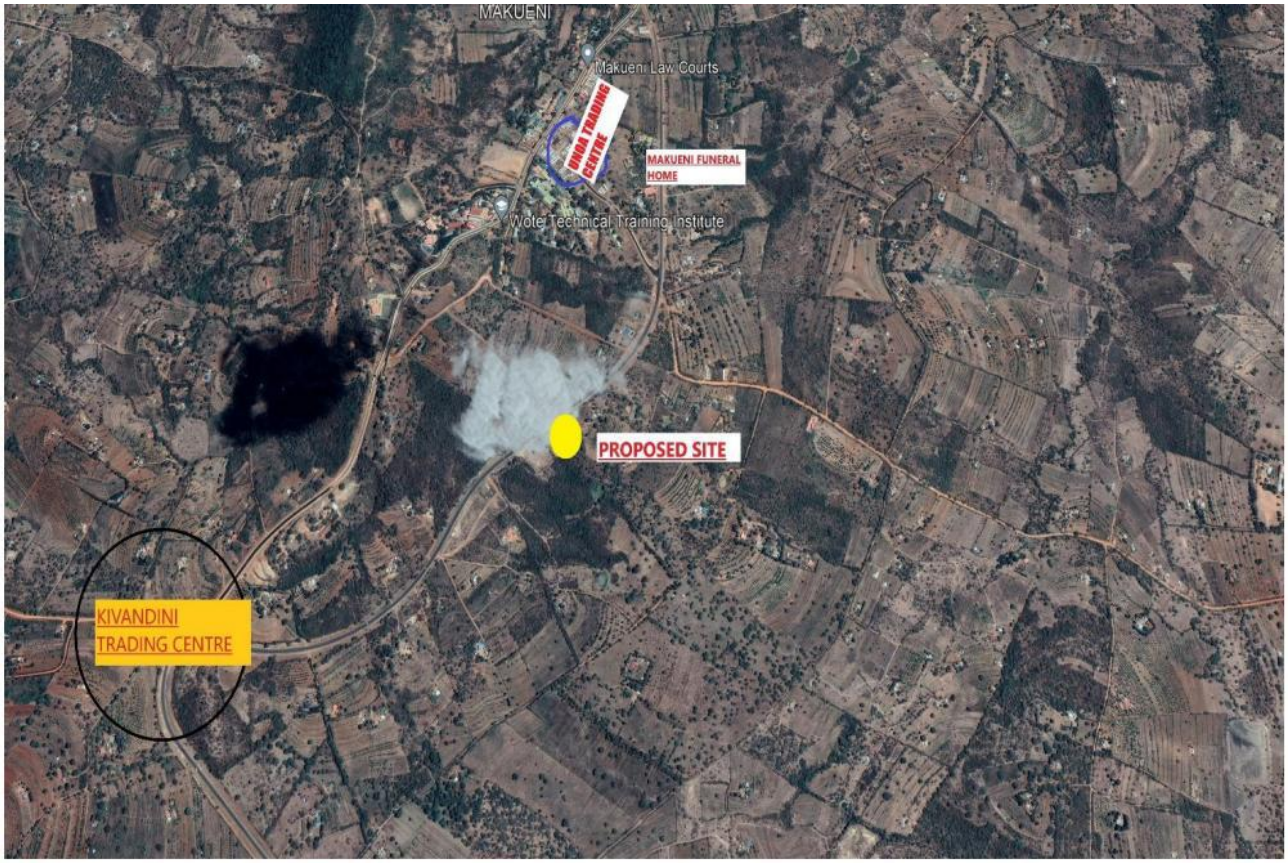

Figure10,11 and 12 : Makueni Funeral Home(900m from proposed site), residential hostels and offices Source: Field survey (29th September 2022)

2.3 Site Ownership, Size, Zoning and Land use

The proposed development will be implemented on Plot Title No. Makueni/Unoa/5794 measuring approximately 0.382Ha. The general area has a rural set-up zoned for agricultural use. The project proponent has obtained a change of user approval from agricultural to commercial use issued by the County Government of Makueni, department of lands, urban development, environment and climate change.

The land ownership (title deed) available is absolute registered under Daniel Kioko Kasangi and plot measures approximately 0.382 ha

The copies of land ownership documents and change of user documents are annexed.



Google Earth Photo showing the location of the proposed development Source; Google Earth Imagery extract 2022

2.4 Nature and design components of the proposed development

2.4.1 Proposed project description

The project proponent is proposing to develop a funeral home On Plot Title No. Makueni/Unoa/5794. The funeral home will offer the following services to the community;

- ✓ preservation and embalming of human bodies,
- ✓ washing and dressing,

- ✓ postmortem,
- ✓ post embalming cosmetology,
- ✓ reconstruction of bodies,
- ✓ hearse services with lowering gear and public address system,
- ✓ flowers and wreaths,
- ✓ coffins,
- ✓ burial permits and
- ✓ counselling services.

The proposed development will comprise of a single storey funeral home with the following;

- **Ground floor:** comprising of an entry, lobby area, reception, office, chapel, flowers store and preparation rooms, Ante room, cold chamber, store, mechanical room, water closets and garage section
- **First floor:** will have a reception, chapel, flower storage and preparation, mechanical room, cold chamber, selection room, offices (2) and water closets
- **Incinerator:** funeral homes produce different types of waste. Each category should be properly disposed to safeguard the professionals working in the facility as well as the general society. Management of biohazardous waste from the funeral home is critical in successful waste management. Wastes such as sharps i.e., needles, and the scalpels or scissors used for preparing the deceased, medications, Gauze and hospital gowns accompanying bodies transported from hospitals or care facilities could carry tissue, blood, germs, or bodily fluids, plastic aprons and arm covers, swabs, masks, disposable gloves, gauze and tubing. All the medical waste will be disposed through incineration.
- **Other amenities include;**
  - ✓ adequate parking and driveways,
  - ✓ water storage tanks for harvested rain water
  - ✓ lawns
  - ✓ External toilets
- ✓ Septic tank and soak pit

The actual construction activities during project implementation include:

- ✓ Clearing and preparation of the proposed project site.
- ✓ Development of perimeter wall
- ✓ Actual construction of the funeral home
- ✓ Development all weather access road, parking and walkways
- ✓ Connection to utilities services including drainage systems, septic and electricity supply
- ✓ Site landscaping especially tree planting and landscaped lawns

More/fine details, Specifications and features of the proposed development will be given on the study report.

2.5 Local Access Roads, Parking and Walkways

The proposed project is situated along Wote-Makindu road and has provision for adequate width access road. Adequate car parking spaces is also be provided within the premises.

2.6 Trunk Infrastructure and Utilities

Water Supply: The proposed development will be served by private water borehole to be drilled within the proposed project site.

Foul Water Drainage: The proposed project will generate substantive amount of waste water per day. Black effluent will be directed to a septic tank.

Storm Water Drainage: The proposed development will generate enormous surface water. It is therefore recommended that adequate and well drainage channels be provided to accommodate the increased discharge. The flow of the storm water has been well captured in the plans for the proposed structures

Solid Waste Disposal: Generally**,** funeral homes produce different types of waste. Each category should be properly disposed to safeguard the professionals working in the facility as well as the general society. Management of biohazardous waste from the funeral home is critical in successful waste management. Wastes such as sharps i.e., needles, and the scalpels or scissors used for preparing the deceased, medications, Gauze and hospital gowns accompanying bodies transported from hospitals or care facilities could carry tissue, blood, germs, or bodily fluids, plastic aprons and arm covers, swabs, masks, disposable gloves, gauze and tubing. All the medical waste will be disposed through incineration. It is recommended that licensed private waste management contractors be contracted to collect the non-hazardous waste. It is further recommended to have one common point (collection point) within the premises to store the waste before final collection.

Electricity Supply: The proposed development will be connected to the Kenya Power and Lighting Company power supply line. The KPLC electricity supply lines are already available within the neighborhood of the proposed project site.

2.7 Landscaping and Tree Planting

The project construction phase involves clearing of vegetation and excavation of soil material.
The project site will be landscaped according to scheme plan. This will entail establishment of flower

gardens, planting of trees, grass and related ground cover to compensate for any cleared vegetation and to improve general aesthetics of the funeral home.

CHAPTER THREE: POLICY, LEGAL AND LEGISLATIVE FRAMEWORK

Environmental Impact Assessment is an instrument for environmental management and development control. It is now accepted that development projects must be economically viable, socially acceptable and environmentally sound. It is a condition of the Kenya Government for developers to conduct Environmental Impact Assessment (EIA) on the development Projects that require an Environmental Impact Assessment study report prepared and submitted to the National Environment Management Authority (NEMA) for review and eventual licensing before the implementation. This was necessary as many forms of developmental activities cause damage to the environment and hence the greatest challenge today is to maintain sustainable development without interfering with the environment.

3.1 Policy Framework.

Environmental policies cut across all sectors and government departments. As such policy formulation should be consultative steered by interdisciplinary committees. Recent policies which the government is working on include; Draft Wildlife Policy; Draft National Land Policy; and Wetlands Management and Conservation Policy among others.

3.1.1 National Environmental Action Plan (NEAP).

National Environmental Action Plan was a deliberate policy effort to integrate environmental concerns into the country's development initiatives/plans. This assumed a consultative and multi-sectoral approach. Such an approach ensured that environmental management and the conservation becomes integral in various decision-making platforms.

As a result of its adoption and implementation, establishment of appropriate policies and legal guidelines as well as harmonisation of the existing ones have been accomplished and/or are in the process of development. Under the NEAP process, Environmental and Social Impact Assessments were introduced targeting the industrialists, business community and County authorities.

3.1.2 National Climate Change Response Framework

Climate is a major driving factor for most of the economic activities in Kenya. It had however, until recently, not been adequately factored in most of the sectors of the Country's economy including Government development policies and plans – not even *Kenya Vision 2030*. In recognition of the gap and the threats posed by climate change, which includes threat in realisation of *Kenya Vision 2030* goal, the Government of Kenya has taken action to address them. Following is the national climate change response framework, which are used to assess the Project's potential risks and impacts, as well as

propose mitigation measures to enable compliance. As will be noted, the framework promotes the green building concept. Thus, it is important the Project complies with this from design, during construction and at operation phases respectively.

3.1.2.1 National Climate Change Response Strategy (2010)

In 2010, the Ministry of Environment and Forestry coordinated the development of the National Climate Change Response Strategy (NCCRS). The purpose of this NCCRS "is to put in place robust measures needed to address most, if not all, of the challenges posed by climate variability and change". To-date, this Strategy is the key Government climate change agenda guide in the Country and, it informs nationwide climate change programmes and development activities, including the formulation of documents such as the National Climate Change Policy and efforts towards the attainment of *Vision 2030*. Following all present and future climate change programmes and projects are and are to be developed in line with provisions of this Response Strategy.

Vis-à-vis, on mitigation interventions, the Response Strategy recommends "efforts that seek to prevent or slow down the increase of atmospheric greenhouse gas (GHG) concentrations by limiting current and future GHG emission and enhancing potential sinks for GHGs". These efforts include:

(a) Restoring the country's forest cover by growing about 7.6 billion trees on 4.1 million hectares of land during the next 20 years: The efforts are targeted to not only gazetted forests, but private forests, on-farm trees and any other areas in which trees can be grown.

(b) Pursuing an energy mix that greatly relies on carbon-neutral energy sources such as geothermal and other renewables (wind, solar and renewable biomass), in order to achieve the goal of low-carbon developed society: At present, Kenya's power generation capacity is grossly inadequate to meet demand. Her main source of electricity is hydropower generation which is vulnerable to climate variability. Other sources are wind, geothermal and, recently, solar. To bridge the electricity generation shortfall from these, the Country occasional rents leases thermal generation units. These are expensive, require large subsidies, and are major contributor of GHG emissions. To counter these and other potential threats to the energy sector, two of the measures the Country has taken are:

    (i) Accelerating development of green energy including wind, solar and renewable biomass. With respect, the Country: 1) has reviewed and gazetted regulations for mandatory installation of solar hot water systems in residential and commercial houses; and, 2) is encouraging development of waste-to-energy projects, where municipal solid waste is converted to energy

for domestic supply. This has the additional benefits including improving health and lowering demand for both landfilling waste and fossil fuels; and,

(ii) Promoting embracement of energy efficiency, i.e., use of less energy to provide the same service without compromising the quality of service. With respect, the Country has enacted The Energy Management Regulations (2012), which enforces mandatory energy audits on large consumers of energy - commercial, industrial and other large institutions. And in 2009, the Country reviewed its building codes. The revised building code, "Planning and Building Regulations (2009)", incorporate modern measures on 'climate-proofing' and the construction of energy-efficient buildings.

3.1.2.2 Kenya National Adaptation Plan (NAP) 2015-2030

This NAP builds on the foundation laid by the NCCRS and the National Climate Change Action Plan (NCCAP) 2013-2017. Additionally, it is the basis for the adaptation component of Kenya's Intended Nationally Determined Contribution (INDC) that has been submitted to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat. The aim of the NAP is to consolidate the Country's vision on adaptation supported by macro-level adaptation actions that relate with the economic sectors and country level vulnerabilities to enhance long-term resilience and adaptive capacity. The NAP presents adaptation actions that cover the time frame 2015-2030.

With respect, the adaptation actions the NAP describes and are relevant to the proposed project include those related to:

(a) Enhancing climate proofing of infrastructure (through use of appropriate designs and building materials);

(b) Mainstreaming climate change adaptation in the environment sector. On this, relevance is the adaptation sub-action "Review and update existing Environmental Impacts Assessment (EIA) regulations with climate change adaptation considerations";

(c) Mainstreaming of climate change adaptation in the water sector, as Kenya requires adequate water management strategies that take into account the sector's vulnerability to climate change. The strategies and plans are to manage, among others, water supply and wastewater. As regards, of relevance to the project is adaptation sub-action that promotes water conservation (recycling, wastewater management) and efficient water use.

(d) Enhancing the adaptive capacity of the population, urbanisation, and housing sector. This is toward "ensuring that continued population growth is matched with climate resilient urban development and green housing programmes". This is "critical for Kenya's sustainable development and

providing a foundation for improving health and safety". Respecting, of relevance to the project are the following two sub-actions: 1) strengthening enforcement of building codes by national and county governments; and, 2) integrating adaptation into relevant building and urban planning.

(e) Enhancing the resilience of the tourism value chain; and,

(f) Creating enabling environment for the resilience of private sector investment. This is in recognition of the private sector being of "critical importance in eradicating poverty and hunger, and developing global partnerships for development. In addition, the sector can help build climate change resilience through its products and services, whilst robust national and international trade will become a crucial instrument to alleviate weather-induced food supply shortages. Climate change has the potential to curtail the success of private sector development (which is crucial to the Kenyan economy and underpins *Vision 2030*), through, for instance, supply chain disruptions, leading to the need of specific adaptation actions.

3.1.2.3 National Climate Change Action Plan (NCCAP) 2018-2022

This is a five-year iterative tool for the integration of low carbon climate resilient initiatives across different socio-economic sectors. It builds on the foundation laid during the implementation of the *National Climate Change Action Plan (NCCAP) 2013-2017*, and the *Climate Change Act (No. 11 of 2016)*. And, it sets out bold measures to ensure that the Country's development remains sustainable in the event of any adverse climate change impacts. Recognised in the Action Plan is that collective contributions by all (the National and County Governments, private sector, civil society, faith-based organisations, other non-state actors, and individual citizens) will help deliver the expected transformational outcomes as relates to climate change. Thus, from this plan, the key priority climate change actions of relevance to the Project, and which it is advisable the project complies with prior to commencement and completion of construction, are as follows:

(a) Priority 3: Water and the Blue Economy. Kenya is a water scarce Country, and this is one of the Country's largest challenges. This water situation has been exacerbated by among others, climate change, deforestation and a growing demand for water. The consequence of this is decreased access to quality water. This priority climate change action seeks to increase annual per capita water availability by June 30th 2023. To achieve this target, among the actions proposed under it, and are relevant to the Project are:

   (i) Promoting water efficiency (monitor, reduce, re-use, recycle and modelling); and,

   (ii) Enabling actions (policies and regulations). Those proposed are: 1) zero rate taxes on water harvesting and storage equipment; 2) development of a water harvesting policy for institutions and households; 3) reviewing by-laws that prohibit water harvesting in urban areas such as

Nairobi; and, 4) formulating a policy for recycled water pricing and beneficiary sectors such as construction, watering flower beds and car washes.

(b) Priority 4: Forests, Wildlife and Tourism. At present, the Country's tree cover is less than 10% of the total land area; and, Chapter 5 of the Constitution of Kenya (2010) stipulates that this ten-percentage cover should be attained. This Action Plan commits to contribute to the restoration, preservation, and sustainable management of forests and other ecosystems that play an essential role in Kenya's economy.

(c) Priority 5: Health, Sanitation and Human Settlements. The rate of solid waste generated across urban centres has been faster than its management. Additionally, solid waste dumping sites are open in Kenya, making them exposed to runoff during heavy rains. And, further compounding the solid waste challenge in Kenya is inappropriate disposal and wastewater. The consequences are adverse environmental and human health impacts, including GHG emissions. In seeking to protect the human and environmental challenges posed by solid waste, the main guiding approach the Government of Kenya has taken is the "zero waste principle" as set out in the National Solid Waste Management Strategy (NSWMS). Recycling, compositing, waste minimisation, and industrial symbiosis are important elements of this strategy. As regards to this Climate Change Action Priority 5, among the actions under it is "Promoting recycling to divert collected waste away from disposal sites".

(d) Priority 7: Energy and Transport. This priority is with regard to reducing GHG emissions in energy and transport; and among the actions it promotes, that are relevant to the Project are: i) improved energy efficiency and energy conservation; ii) uptake of clean cooking, whereby clean fuels such as LPG, and ethanol are promoted and used; and, iii) enabling actions (technology) whereby uptake of climate change resilient technologies, such as modern coolers and scrubbers, are promoted.

3.1.3 National Solid Waste Management Strategy (2015)

Development of this strategy was guided by the provisions of the Environmental Management and Coordination Act (1999) and Environmental Management and Coordination (Waste Management) Regulations (2006), in order to ensure a clean and healthy environment for all, keeping in line with Article 42 of the Constitution of Kenya 2010. With respect, this strategy was reviewed here so as to assess and propose measures that will assist the Project to comply with the **7R** orientation of the Strategy, namely "**R**educing, **R**ethinking, **R**efusing, **R**ecycling, **R**eusing, **R**epairing, and **R**efilling its waste", which is a "zero waste principle".

3.1.4 National Policy on Water Resources Management and Development

While the National Policy on Water Resources Management and Development (1999) enhances a systematic development of water facilities in all sectors for promotion of the country's socio-economic progress, it also recognizes the by-products of this process as wastewater. It, therefore, calls for development of appropriate sanitation systems to protect people's health and water resources from institutional pollution. This implies that Industrial and business development activities should be accompanied by corresponding waste management systems to handle the wastewater and other waste emanating there from. The same policy also requires that such projects undergo comprehensive EIAs that will provide suitable measures to be taken to ensure environmental resources and people's health in the immediate neighbourhood and further downstream are not negatively impacted by the emissions. As a follow-up to this, EMCA, 1999 requires annual environmental audits to be conducted in order to ensure that mitigation measures and other improvements identified during ESIAs are implemented.

In addition, the policy provides for charging levies on wastewater on the basis of quantity and quality. The "polluter-pays-principle" applies in which case parties contaminating water are required to meet the appropriate cost of remediation. Consequently, to ensure water quality, the policy provides for establishment of standards to protect water bodies receiving wastewater, a process that is on-going. The standards and measures to prevent pollution to water resources are provided for in the Environmental Management and Coordination (Water Quality) Regulations, 2006 which is a supplementary legislation to EMCA, 1999.

3.1.5 Policy Paper on Environment and Development (Sessional Paper No. 6 of 1999)

The key objectives of the Policy include: -

(a) To ensure that from the onset, all development policies, programs and projects take environmental considerations into account,

(b) To ensure that an independent environmental impact assessment (EIA) report is prepared for any industrial venture or other development before implementation,

(c) To come up with effluent treatment standards that will conform to acceptable health guidelines.

Under this paper, broad categories of development issues have been covered that require a "sustainable development" approach. These issues relate to waste management and human settlement. The policy recommends the need for enhanced re-use/recycling of residues including wastewater, use of low or non-waste technologies, increased public awareness raising and appreciation of a clean environment. It also encourages participation of stakeholders in the management of wastes within their localities.

Regarding human settlement, the paper encourages better planning in both rural and urban areas and provision of basic needs such as water, drainage and waste disposal facilities among others.

3.2 Legal and Legislative Framework

3.2.1 Climate Change Act (2016)

This is an Act of parliament to provide a regulatory framework for enhanced response to climate change at both the National and County Government levels, to provide for mechanisms and measures to achieve low carbon climate development, and for connected purposes. The Act was promulgated in line with Kenya's responsibility to mitigate the effects of climate change, and in keeping with the objective of the *Paris Agreement*. Consequently, climate change is now recognised as a crosscutting thematic area in the Country's planning process.

3.2.2 Environmental Management and Coordination Act No.8 of 1999

This project report has been undertaken in accordance with the Environment (Impact Assessment and Audit) Regulations, 2003, which operationalizes the Environmental Management and Coordination Act, 1999. The report is prepared in conformity with the requirements stipulated in the Environmental Management and Coordination Act No. 8 of 1999 (EMCA) and the Environmental Impact Assessment and audit Regulations 2003, Regulation 7 (1) and the Second Schedule.

Part II of the said act states that every person is entitled to a clean and healthy environment and has the duty to safeguard the same. In order to achieve the goal of a clean environment for all, new projects listed under the second schedule of Section 58 of EMCA No. 8 of 1999 shall undergo an Environmental Impact Assessment. This includes development activities such as this new housing development. In addition to the legal compliance above, the following legal aspects have also been taken into consideration or will be taken into consideration before commencement of construction:

The Environment Management and Coordination Act (EMCA), 1999 provides for the establishment of an umbrella legal and institutional framework under which the environment in general is to be managed. EMCA is implemented by the guiding principle that every person has a right to a clean and healthy environment and can seek redress through the High court if this right has been, is likely to be or is being contravened.

Pursuant to section 25 (4) of EMCA, National Environmental Management Authority (NEMA) is required to restore degraded environmental sites using the National Environmental Restoration Fund. Section 58 of the Act makes it mandatory for an Environmental Impact Assessment study to be carried

out by proponents intending to implement projects specified in the second schedule of the Act which are likely to have a significant impact on the environment. Similarly, section 68 of the same Act requires operators of existing projects or undertakings to carry out environmental audits in order to determine the level of conformance with statements made during the EIA study. The proponent is required to submit the EIA and environmental audit reports to NEMA for review and necessary action.

Section 72 of the Act prohibits discharging or applying poisonous, toxic, noxious or obstructing matter, radioactive or any other pollutants into aquatic environment. According to section 73 of the act, operators of projects which discharge effluent or other pollutants into the aquatic environment are required to submit to NEMA accurate information on the quantity and quality of the effluent. Section 76 provides that all effluent generated from point sources are to be discharged only into the existing sewerage system upon issuance of prescribed permit from the County authorities.

Section 87 (1) makes it an offence for any person to discharge or dispose of any wastes, whether generated within or outside Kenya, in such a manner as to cause pollution to the environment or ill health to any person.

The proponent will have to ensure that environmental protection facilities or measures to prevent pollution and ecological deterioration such as Effluent treatment plant connections, solid waste management plans, and landscaping and aesthetic improvement program are implemented and maintained throughout the project cycle. As well the; proponent will have to ensure that appropriate measures to prevent pollution of underground and surface water are implemented throughout the project cycle.

3.2.2 The Environmental Management and Co-ordination (Waste Management Regulations 2006)

Legal Notice No. 121: Section 4-6

Part II of the Environmental Management and Co-ordination (Waste Management) Regulations, 2006 states that: - 4. (1) No person shall dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle.

(2) Any person whose activities generate waste shall collect, segregate and dispose or cause to be disposed off such waste in the manner provided for under these Regulations.

(3) Without prejudice to the foregoing, any person whose activities generates waste has an obligation to ensure that such waste is transferred to a person who is licensed to transport and dispose off such waste in a designated waste disposal facility. In addition, the Regulations state that:

5. (1) a waste generator shall minimise the waste generated by adopting the following cleaner production methods

(a) Improvement of production process through: -

(i) Conserving raw materials and energy;

(ii) Eliminating the use of toxic raw materials; and

(iii) Reducing toxic emissions and wastes

(b) Monitoring the production cycle from beginning to end by: -

(i) Identifying and eliminating potential negative impacts of the product;

(ii) Enabling the recovery and re-use of the product where possible;

(iii) Reclamation and recycling

(c) Incorporating environmental concerns in the design and disposal of a product.

6. A waste generator shall segregate waste by separating hazardous wastes from non-hazardous waste and shall dispose of such wastes in such facility as shall be provided by the relevant County authority.

(23) No person shall engage in any activity likely to generate any hazardous waste without a valid Environmental Impact Assessment license issued by Authority under the provisions of the Act.

The proponent shall ensure that the main contractor adopts and implements all possible cleaner production methods during the construction phase of the project. During the construction phase of the project, the proponent shall ensure that the main contractor implements the above-mentioned measures as necessary to enhance sound Environmental Management and Coordination (Noise management of waste).

3.2.3 Wastewater Management;

Legal Notice No. 120; Part II – Protection of Sources of Water for Domestic Use.

4. (1) every person shall refrain from any act which directly or indirectly causes, or may cause immediate or subsequent water pollution, and it shall be immaterial whether or not the water resource was polluted before the enactment of these Regulations

(2) No person shall throw or cause to flow into or near a water resource any liquid, solid or gaseous substance or deposit any such substance in or near it, as to cause pollution

5. All sources of water for domestic uses shall comply with the standards set out in the First Schedule of these Regulations.

The proponent and project Architect as well as engineer are urged to ensure that drainage channels are well designed during the construction phase of the project, and upon completion the entire project is supposed to be connected to wastewater sewer line for proper management of liquid waste.

3.2.4 Public Health Act Cap 242

Part IX section 115 of the Act states that no person or institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires that County Authorities take all lawful necessary and reasonable practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable to injuries or dangerous to human health.

3.2.5 The Physical and Land Use Planning Act (2019)

This is an Act of Parliament to make provision for the planning, use, regulation and development of land; and for connected purposes.

The objects of this Act are to provide:

(a) The principles, procedures and standards for the preparation and implementation of physical and land use development plans at the national, county, urban, rural and cities level;

(b) The administration and management of physical and land use planning in Kenya;

(c) The procedures and standards for development control and the regulation of physical planning and land use;

(d) A framework for the co-ordination of physical and land use planning by county governments;

(e) A mechanism for dispute resolution with respect to physical and land use planning;

(f) A framework for equitable and sustainable use, planning and management of land;

(g) The functions of and the relationship between planning authorities;

(h) A robust, comprehensive and responsive system of physical and land use planning and regulation; and

(i) A framework to ensure that investments in property benefit local communities and their economies.

Thus, this Act mandates a developer to adhere to an officially approved physical and land use plan of the site to be developed, as well as seek approval to develop the site. This sector deals with, among

others, development control, urban design and enforcement. Of significant note, by this Law, public participation is a requirement in the preparation of a physical and land use development plan.

3.2.6 Planning and Building Regulations, 2009

These regulations replace the Building Code 2000, which had been applied in Kenya since 1968. The Building Code 2000 was revised in order to encourage the use of innovative design, new materials and new construction methods; to optimise on resources and to enhance adherence to planning and building standards. Today, any building designed and constructed with the principles and norms of good building practice is mandated to comply with the Planning and Building Regulations (2009). These Regulations are a guide on good planning and building practice. They set out, in the simplest and shortest way possible, requirements to ensure that planning will be so undertaken and buildings are designed and built in such a way that persons may live and work in a healthy, safe and convenient environment.

The overall aim of the Regulations is to promote and enhance planning and its enforcement at all levels; to encourage optimal use of resources; enhance safety, health and convenience; and, to improve acceptability and compliance of these Regulations. On their scope, they cover provisions for national, regional and local physical planning, siting, site operations, building design, building and infrastructure services, disaster risk management on construction sites and maintenance of all buildings as contained in the Regulations.

3.2.7 Water Act (2016)

The purpose of this Water Act 2016 is to provide for the regulation, management and development of water resources and water and sewerage services in line with the Constitution of Kenya (2010). The Cabinet Secretary, the Water Resources Authority (established under Section 11 of the Act), the Water Services Regulatory Board (established under Section 70 of the Act), county government and any person administering or applying this Act shall be guided by the principles and values set out in Articles 10, 43, 60 and 232 of the Constitution.

This Act guides on the optimal and sustainable behaviour the developer shall observe with respect to these two issues, both during construction and operation phases of the development. Following, as per Section 7, upon commencement of the Act in 2017, no conveyance, lease or other instrument shall convey, assure, demise, transfer or vest in the developer or any other person any property, right, interest or privilege in respect of river except as may be prescribed under the Act. Other sections of the Act worth highlighting, as regards to the water resource include:

(a) Section 9 which provides on the administration of this national water resource. Accordingly, every person has the right to access the water resource, whose administration is the function of the national government as stipulated in the Fourth Schedule to the Constitution.

(b) Sections 24 to 28: Accordingly, the Water Resources Authority has most likely designated a basin area covering River. This basin area is a defined area from which rain water flows into water resources within the basin. The management of water resources within the basin area is under a Basin Water Resources Committee. This Committee is required, and should have by now developed the Basin Area's Water Resources Management Strategy. It is in the interest of the Developer to locate and collaborate with this Basin Area's Water Resources Committee, both during construction and operation phases of the development.

(c) Section 143: Section 143(1) provides that the developer shall not, without authority conferred under the Act: (a) wilfully obstruct, interfere with, divert or obstruct water from Rivers or any water resource, or negligently allow any such obstruction, interference, diversion or abstraction; or, (b) throw, convey, cause or permit to be thrown or conveyed, any rubbish, dirt, refuse, effluent, trade waste or other offensive matter or thing into or near to River and any water resource in such a manner as to cause, or be likely to cause, pollution of the water resource. Should the developer contravene this section, according to Section 143(2), he commits an offence. A water resource, according to the act, includes any stream, watercourse, aquifer, and other water bodies below ground; which implies ground water as regards to boreholes and wells.

Regarding water services, worth highlighting is the following Sections of the Act:

(a) Section 85, which is on provision of water services. Accordingly, it is an offence for the Developer to provide water services without a license issued by the Water Services Regulatory Board. Nothing under the Section, however prohibits the Developer from providing water services: i) to his employees, ii) on the premises of the development in cases where the source of supply of water is lawfully under the control of the development, or where the water is supplied to the development in bulk by a licensee; and, iii) in circumstances which are prescribed by the Regulations made by the Water Services Regulatory Board to be exempt from the requirement of a license.

(b) Sections 86 to 87. Section 86 provides for the procedure and requirements for the Developer obtaining the license. Application for this license, however, by Section 87, is subject to public consultation, whereby any person opposed to the grant of a licence may object in writing to the Water Services Regulatory Board. Thereafter, the subsequent Sections provide for the process of determining on an application.

(c) Section 107. This section provides for execution of works for protection of water. The Developer, on obtaining a license, may on land belonging to it construct and maintain drains, sewers and other works for intercepting, treating or disposing any foul water arising or flowing upon its land or otherwise for preventing water belonging to the development, or which it is for the time being authorised to take, from being polluted. And, if the works will affect or a likely to affect any water resource, the Developer shall obtain consent of the Water Resources Authority and the Water Services Regulatory Board.

(d) Section 108, which provides for control of trade effluent. Should the developer obtain a license to receive trade effluent into its sewerage system, it is his duty to ensure that the system has in place measures for the receipt and handling of the effluent without causing: i) pollution of the environment, ii) harm to human health, iii) damage to the sewerage system, or iv) a contravention of applicable laws or standards set by the Water Services Regulatory Board. The Section also provides that the Developer shall not discharge any trade effluent from the development into the sewers of a licensee without the consent of the licensee.

(e) Fourth Schedule (and Section 56), which apply to abstraction of ground water should the developer construct a borehole Respecting, the Developer shall not construct or begin to construct a borehole or well without having first given to the Water Resources Authority notice of intention to do so, as well as applying to the Authority for a permit. This permit shall have such requirements as may be imposed by the Authority. And, the Developer shall allow any person authorised by the Authority, at any reasonable time to: i) have access to the groundwater source, ii) inspect the ground water works and the material excavated from it, iii) take specimens of such material and of water abstracted from the ground water source, and iv) inspect and take copies of or extracts from the record required to be kept.

All in all, it would be advisable for the Developer to properly acquaint self with the Act, to ensure compliance with the provisions of this Act, its subsidiary legislation, and other government plans and strategies developed in compliance with Act. Vis-à-vis, by the Act, the main contractor will be required to implement necessary measures to ensure water conservation and also to prevent potential for water contamination during the construction phase.

3..2.8 County Governments Act, 2012

This Act came into operation upon the final announcement of the results of the first elections under the Constitution of Kenya (2010). It is an Act of Parliament: i) to give effect to Chapter Eleven of the Constitution; ii) to provide county governments powers, function and responsibilities to deliver services; and, iii) for connected purposes. By this Act, the Counties within Kenya are as provided in the First Schedule of the Constitution (2010). Makueni, where the proposed development is to take place, is one

of the Counties. By Section 5 of the Act, Makueni County is responsible for any function assigned to it under the Constitution or by an Act of Parliament. This includes, in accordance with Article 185 of the Constitution,

(a) Making any laws that are necessary for, or incidental to, the effective performance of the functions and exercise of the powers of the County Government under the Fourth Schedule; and,

(b) Receiving and approving plans and policies for: i) the management and exploitation of the county's resources; and, ii) the development and management of its infrastructure and institutions.

However, should the laws made and plans approved conflict with of the national legislation, in respect of matters falling within the concurrent jurisdiction of both levels of Government, as per Article 191 of the Constitution, the national legislation prevails if the national legislation: i) applies uniform throughout Kenya (and any of the conditions specified in Clause 191(3) is satisfied); and, ii) is aimed at preventing unreasonable action by a County that is prejudicial to the economic, health, or security interests of Kenya or another county, or impedes implementation of national economic policy.

Lastly, by Section 5 of the Act, the functions of Makueni County are as provided for in Article 186 and as assigned in the Fourth Schedule of the Constitution (2010). From the list provided in the Fourth Schedule, that of particular relevance to the development during construction phase include: i) Clause 2, in particular: a) licensing and control of undertakings that sell food to the public; and, g) refuse removal, refuse dumps and solid waste disposal; ii) Clause 3, which is on control of air pollution, noise pollution, other public nuisances and outdoor advertising; iii) Clause 8, on county planning and development; iv) Clause 10, on implementation of specific national government policies on natural resources and environmental conservation, including: a) soil and water conservation; and, b) forestry; v) Clause 11, on county public works and services, including: a) storm water management systems in built-up areas; and, b) water and sanitation services; and, vi) Clause 12, on firefighting services and disaster. As regards during operation phase, all the above and the following: i) Clause 4, on cultural activities, public entertainment and public amenities, including: c) licensing liquor; and, i) sports and cultural activities and facilities; and, ii) Clause 7 on trade development and regulation including: b) trade licenses; and, d) local tourism.

As to Clause 8, Part XI of the Act (County Planning) operationalises it. Vis-à-vis, Section 103 provides the objectives of planning Makueni County. These include: a) ensuring productive use of scarce land, water and other resources for economic, social, ecological and other functions across the County; b) maintaining a viable system of green and open spaces for a functional eco-system; c) protecting the historical and cultural heritage, artefacts and sites within the County; d) making reservations for public security and other critical national infrastructure and other utilities and services; e) working towards the

achievement and maintenance of a tree cover of at least ten percent of the land area of Kenya as provided in Article 69 of the Constitution; and, e) developing the human resource capacity of the County. And, Section 107 of the Act provides for the types of plans Makueni County has, namely: Makueni County Integrated Development Plan, Makueni County Sectoral Plans and Makueni County Spatial Plan. By Section 104, all the approved plans of the Country are binding. Thus, there is a plan for the area within and around the development site; and, the development is bound by this (also refer to sub-section 2.2.5 - The Physical and Planning Act, 2019 – above). The development shall comply with this as well as the licensing requirements of the County, as to the services the County Government provides.

3.2.10 Energy Act (2019)

This is an Act of Parliament to consolidate the laws relating to energy, to provide for National and County Government function in relation to energy, to provide for the establishment, powers and functions of the energy sector entities; promotion of renewable energy; exploration, recovery and commercial utilisation of geothermal energy; regulation of midstream and downstream petroleum and coal activities; regulation, production, supply and use of electricity and other energy forms; and for connected purposes.

3.2.11 the Penal Code (Cap. 63)

Section 191 of the Penal Code makes it an offence for any person or institution that voluntarily corrupts, or foils water for public springs or reservoirs rendering it less fit for its ordinary use. Similarly, section 192 of the same act prohibits making or vitiating the atmosphere in any place to make it noxious to health of persons/institution in dwellings or business premises in the neighbourhood or those passing along a public way.

The proponent will be required to ensure strict adherence to the Environmental Management Plan throughout the project cycle in order to mitigate against any possible negative impact.

3.3 Other relevant Provisions

The following are the relevant environmental treaties to which Kenya is signatory in order of ratification:

(a) Montreal Protocol on Substances that Deplete the Ozone Layer (1987) ratified 9 November 1988

(b) United Nations Convention to Combat Desertification (1994), ratified 12 June 1994

(c) United Nations Framework Convention on Climate Change (1992), ratified 30 August 1994

(d) Convention on Biological Diversity (1992), ratified 11 September 1994

(e) Bamako Convention (1991), ratified 17 December 2003

(f) Kyoto Protocol (2004), ratified 25 February 2005

3.4 Institutional Framework

At present there are over twenty (20) institutions and departments which deal with environmental issues in Kenya. Some of the key institutions include the National Environmental Council (NEC), National Environmental Management Authority (NEMA), the Forestry Department, Kenya Wildlife Services (KWS) and others. There are also local and international NGOs involved in environmental activities that impact on the environment in one way or the other in the country.

3.4.1 National Environmental Management Authority (NEMA).

The object and purpose for which NEMA is established is to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of the government in the implementation of all policies relating to the environment. A Director General appointed by the president heads NEMA. The objects and functions of the Authority include:

(a) Co-ordinating the various environmental management activities being undertaken by the lead agencies and promote the integration of environmental considerations into development policies, plans, programs and projects with a view to ensuring the proper management and rational utilisation of environmental resources on a sustainable yield basis for the improvement of the quality of human life in Kenya;

(b) Taking stock of the natural resources in Kenya and their utilisation and conservation; and, audit and determine the net worth or value of the natural resources in Kenya and their utilisation and conservation;

(c) Making recommendations to the relevant authorities with respect to land use planning;

(d) Examining land use patterns to determine their impact on the quality and quantity of the natural resources;

(e) Undertaking research, investigation and surveys in the field of environment and collect, collate and disseminate information about the findings;

(f) Initiating and evolving procedures and safeguards for the prevention of accidents which may cause environmental degradation and evolving remedial measures where accidents occur;

(g) Monitoring and assessing activities, including activities being carried out by relevant lead agencies, in order to ensure that the environment is not degraded by such activities;

(h) Undertaking, in co-operation with relevant lead agencies, programmes intended to enhance environmental education, public awareness and public participation;

(i) Developing, publishing and disseminating manuals, codes or guidelines relating to environmental management and prevention or abatement of environmental degradation;

(j) Rendering advice and technical support, where possible, to entities engaged in natural resource management and environmental protection;

(k) Encouraging voluntary environmental conservation practices; and,

(l) Working with other lead agencies to issue guidelines and prescribe measures to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya.

Moreover, NEMA mandate is designated to the following committees:

3.4.3 County Environment Committee (2015)

County Environment Committees are responsible for the proper management of the environment within the County in respect of which they are appointed to. They are also to perform such additional functions as are prescribed by the Act or as may, from time to time be assigned by the Minister by gazette notice. The decisions of these committees are legal and it is an offence not to implement them. The County Environment Committee has an oversight and decision-making role at the County level. The County Environment Committees are responsible for the proper management of the environment within the County, which they are appointed. They are also to perform such additional functions as are prescribed by this Act or as may from time to time be assigned by the Minister by gazette notice.

3.4.5 Public Complaints Committee.

The Committee is charged with the following functions:

Investigating allegations/ complaints against any person or against the Authority (NEMA) in relation to the condition of the environment and its management, Prepare and submit to the Council periodic reports of its activities which shall form part of the annual report on the state of the environment, and to perform such other functions and excise such powers as may be assigned to it by the Council.

3.4.6 National Environment Action Plan Committee.

This Committee is responsible for the development of a 5-year Environment Action plan among other things. The National Environment Action Plan shall contain:

Analysis of the Natural Resources of Kenya with an indication as to any pattern of change in their distribution and quantity over time, and Analytical profile of the various uses and value of the natural resources incorporating considerations of intergenerational and intra-generational equity among other duties as the EMCA specifies.

3.4.7 Standards and Enforcement Review Committee.

This is a technical Committee responsible for environmental standards formulation methods of analysis, inspection, monitoring and technical advice on necessary mitigation measures. Standards and Enforcement Review Committee consists of the members set out in the third schedule to the Environmental Management and Co-ordination Act.

3.4.8 National Environment Tribunal.

This tribunal guides the handling of cases related to environmental offences in the Republic of Kenya. The Tribunal hears appeals against the decisions of the Authority. Any person who feels aggrieved may challenge the tribunal in the High Court.

3.4.9 The Occupational Safety and Health Act, 2007.

This is an act of Parliament to provide for the safety, health and welfare of workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. The Act was published in the Kenya Gazette Supplement No. 111 (Acts No.15). It received presidential assent on 22nd October, 2007 and became operational on 26th October, 2007. The key areas addressed by the Act include:

(a) General duties including duties of occupiers, self-employed persons and employees

(b) Enforcement of the act including powers of an occupational safety and health officer

(c) Registration of workplaces.

(d) Health General Provisions including cleanliness, ventilation, lighting and sanitary conveniences

(e) Machinery safety including safe handling of transmission machinery, hand held and portable power tools, self-acting machines, hoists and lifts, chains, ropes & lifting tackle, cranes and other lifting machines, steam boilers, air receivers, refrigeration plants and compressed air receiver

(f) Safety General Provisions including safe storage of dangerous liquids, fire safety, evacuation procedures, precautions with respect to explosives or inflammable dust or gas

(g) Chemical safety including the use of material safety data sheets, control of air pollution, noise and vibration, the handling, transportation and disposal of chemicals and other hazardous substances materials

(h) Welfare general provisions including supply of drinking water, washing facilities, and first aid

(i) Offences, penalties and legal proceedings.

Under section 6 of this act, every occupier is obliged to ensure safety, health and welfare of all persons working in his workplace. The occupier shall achieve this objective by preparing and as often as may be appropriate, revising a written statement of his general policy with respect to the safety and health at work of his employees and the organisation and arrangements for the time being in force for carrying out that policy (Section 7).

He is also required to establish a safety and health committee at the workplace in a situation where the number of employees exceeds twenty (section 9) and to cause a thorough safety and health audit of his workplace to be carried out at least once in every period of twelve months by a registered safety and health Advisor (Section 11). In addition, any accident, dangerous occurrence, or occupational poisoning which has occurred at the workplace needs to be reported to the occupational safety and health officer of the respective area by an employer or self-employed person (section 21). According to section 44, potential occupiers are required to obtain a registration certificate from the Director for all premises intended for use as workplaces. Such places shall be maintained in a clean state during the operation phase (section 47).

To ensure machinery safety, every hoist or lift – section 63 and/or all chains, ropes and lifting tackles – section 64 (1d), shall be thoroughly examined at least once in every period of six months by a person approved by the Director of Occupational Health and Safety Services. Similarly, every steam boiler - section 67 (8) and/or steam receiver - section 68 (4) and all their fittings and/or attachments shall be thoroughly examined by an approved person at least once in every period of twelve months whereas every air receiver shall be thoroughly cleaned and examined at least once in every period of twenty-four months or after any extensive repairs - section 69 (5). According to section 71 (3), every refrigeration plant capable of being entered by an employee also needs to be examined, tested and certified at least once in every period of twelve months by an approved person.

In relation to fire safety, section 78 (3) requires spillage or leaks of any flammable liquid to be contained or immediately drained off to a suitable container or to a safe place, or otherwise treated to make it safe.

Furthermore, a clear and bold notice indicating that smoking is prohibited should be conspicuously displayed in any place in which explosive, highly flammable or highly combustible substances, are manufactured, used, handled or stored-section 78 (5). In addition, necessary precautions for dealing with fire incidents should be implemented including provision of means for extinguishing fire and means for escape, in case of fire, for the persons employed in any workplace or workroom – section 81. As far as disaster preparedness and emergency response program is concerned, section 82 (1) makes it a mandatory requirement for every occupier of a workplace to design evacuation procedures to be used during any emergency situation and to have them tested at regular intervals.

To promote health and safety of employees who are at risk of being exposed to chemical substances, section 84 (3) and 85 (4) requires every employer to maintain at the workplace material safety data sheets and chemical safety data sheets respectively for all chemicals and other hazardous substances in use and ensure that they are easily available to the employees. The employers' positive contribution towards the welfare of the employees include provision and maintenance of adequate supply of wholesome drinking water - section 91 and a first aid box or cupboard of the prescribed standard – section 95 at suitable point (s) conveniently accessible to all employees.

Other precautionary measures include: issuance of a permit to work to any employee, likely to be exposed to hazardous work processes or hazardous working environment, including such work processes as the maintenance and repair of boilers, dock work, confined spaces, and the maintenance of machinery and equipment, electrical energy installations, indicating the necessary precautions to be taken – section 96 (1); provision and maintenance for the use of employees, adequate, effective and suitable protective clothing including suitable gloves, footwear, goggle and head coverings in any workplace where employees are likely to be exposed to wet, injurious or offensive substance – section 101 (1). The proponent will be required to ensure that the main contractor includes in the contract document, adequate measures to promote safety and health of workers.

3.4.10 Trade Licensing Act (Cap 497)

Section 5 of the Act makes it mandatory for all businesses to obtain trading licenses.

3.4.11 Environmental Vibration Pollution (Control) Regulations, 2009

These regulations were published as legal Notice No. 61 being a subsidiary legislation to the Environmental Management and Co-ordination Act, 1999. The regulations provide information on the following:

(a) Prohibition of excessive noise and vibration

(b) Provisions relating to noise from certain sources

(c) Provisions relating to licensing procedures for certain activities with a potential of emitting excessive noise and/or vibrations and

(d) Noise and excessive vibrations mapping.

According to regulation 3 (1), no person shall 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. Regulation 4 prohibits any person to (a) make or cause to be made excessive vibrations which annoy, disturb, injure or endanger the comfort, repose, health or safety of others and the environment; or (b) cause to be made excessive vibrations which exceed 0.5 centimetres per second beyond any source property boundary or 30 metres from any moving source. Regulation 5 further makes it an offence for any person to make, continue or cause to be made or continued any noise in excess of the noise levels set in the First Schedule to these Regulations, unless such noise is reasonably necessary to the preservation of life, health, safety or property.

Regulation 12 (1) makes it an offence for any person to operate a motor vehicle which- (a) produces any loud and unusual sound; and (b) exceeds 84 dB(A) when accelerating. According to sub regulation 2 of this regulation, 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.

Regulation 13 (1) provides that except for the purposes specified in sub-Regulation (2) there under, no person shall operate construction equipment (including but not limited to any pile driver, steam shovel, pneumatic hammer, derrick or steam or electric hoist) or perform any outside construction or repair work so as to emit noise in excess of the permissible levels as set out in the Second Schedule to these Regulations.

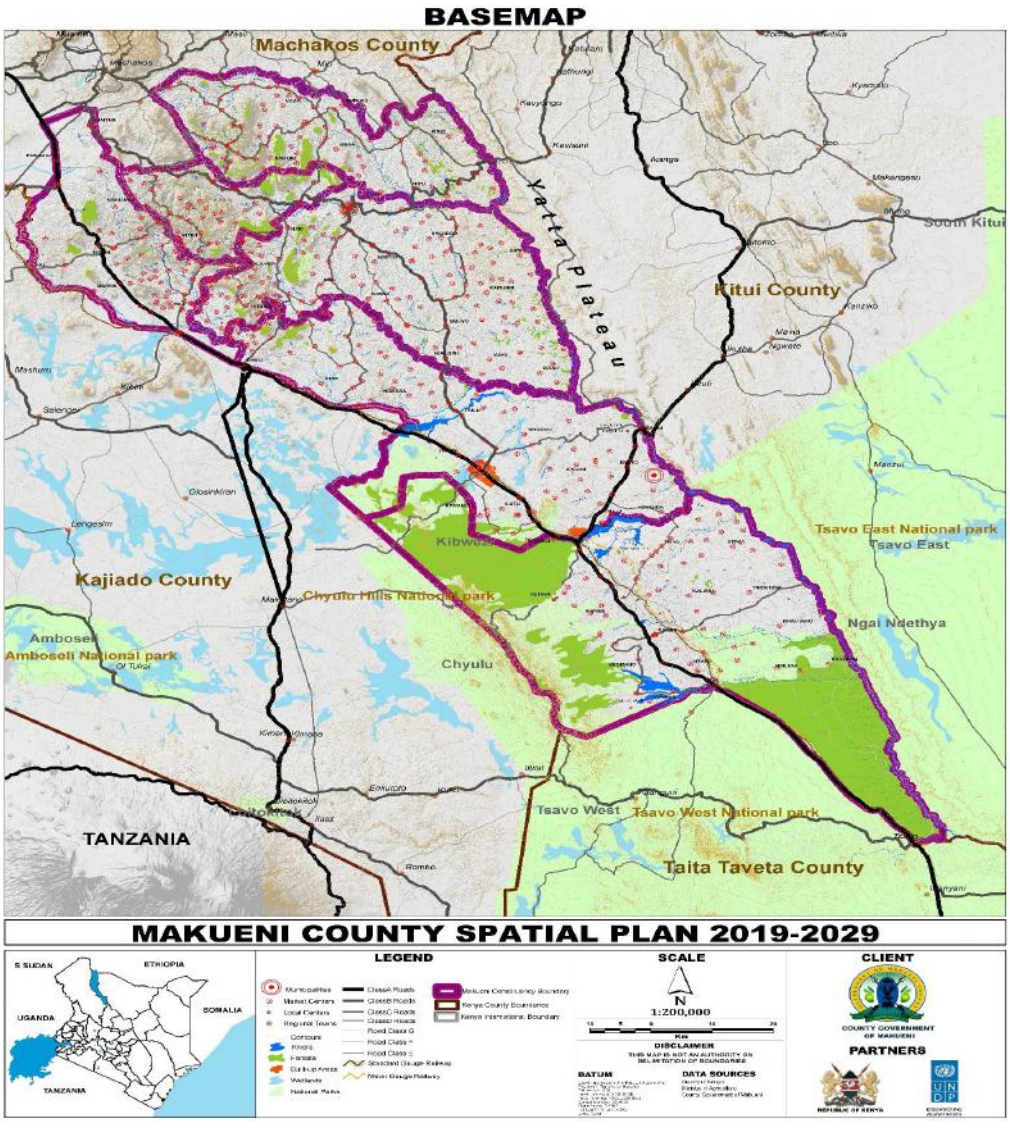
Regulation 16 (1) stipulates that where a sound source is planned, installed or intended to be installed or modified by any person in such a manner that such source shall create or is likely to emit noise or excessive vibrations, or otherwise fail to comply with the provisions of these Regulations, such person shall apply for a License to the Authority. According to regulation 18 (6) the license shall be valid for a period not exceeding seven (7) days. Regulation 19 (1) prohibits any person to carry out activities relating to fireworks, demolitions, firing ranges or specific heavy industry without a valid permit issued by the Authority. According to sub regulation 4, such permit shall be valid for a period not exceeding three months.

The project proponent will be required to comply with the above-mentioned regulations in order to promote a healthy and safe working environment

CHAPTER FOUR: BASELINE INFORMATION FOR THE STUDY AREA

4.1 Location

Makueni County lies between Latitude 1º 35´ and 30º 00' South and Longitude 37º10´ and 38º 30´East. The County lies south of the equator, west of Kenya's Indian Ocean Coastline, north of Mt Kilimanjaro and along the Eastern edge of the Great Rift Valley. The county is bordered by Machakos County to the northwest, Kajiado County to the southwest, Kitui County to the northeast and Taita Taveta to the east. The County is connected to Machakos County via Itangini-Mbooni-Tawa-Masii, Wote-Kola-Machakos and Itangini Mbumbuni-Mbaikini Roads, Kitui via the Kibwezi-Kalembwa Road, Kajiado County via the Sultan Hamud-Mashuru, Emali-Loitokitok Roads and Taita Taveta via the Tsavo-KilanguniMasongaleni loop. The County capital, Wote, is 73km east of Machakos town, 170km south of Kitui town and 188km east of Kajiado town and 229km northwest of Voi town. The Tsavo National Park constitutes part of the County territory to the southeast.



Makueni County covers an area of 8,034.7 square kilometres and is edged by the Mbooni/ Nunguni/ Nzaui Hills to the northwest, Chyulu Hills to the southwest and the giant Athi River and parallel Yatta Plateau to the northeast.

The proposed project is located on Plot Title No. Makueni/Unoa/5794 along Wote-Makindu road in Kwa Ngulue area within Wote Township in Makueni County. The site lies between Kunoa and Kivandini shopping centres approximately 2 Kilometers from Wote town on GPS coordinates -1.80967°S and 37. 624848°E.

4.2 Site Conditions

4.2.1 Climate

The County has three relief and climate-differentiated zones, namely; arid (Mtito Andei, Tsavo), semi-arid (Masongaleni, Kibwezi, Kathonzweni, Makueni) and sub-humid (Mbooni, Kilungu). Precipitation is higher in the highlands of Tulimani, Mbooni, Kilungu and Matiliku which receive 800-1200mm of rainfall per annum. The and middle altitude zones of Kalawa, Kasikeu, Mbitini, Chyulu hills, Kibwezi and Makindu record a mean seasonal rainfall of 350-450mm. The lowlands of Kilome, western sides of Kasikeu, Nguu and Kathonzweni receive significantly lower rainfall averaging between 200 and 350mm. Below is a summary of the climatic conditions;

i) Relief and drainage

The County's altitude is generally low, rising from 259m above sea level in the southeast to 2138m above sea level in the northwest. The landscape can be divided into four distinct units as follows; 1. Undulating and very steep uplands (1467m-2138m above sea level) of Kilungu, Kilome and Mbooni to the northwest making up one third of the County's land mass. 2. A vast open gently-inclined plain makes up two-thirds of the County's landscape, stretching southeast from Kilome's foothills. 3. The bottomlands of Kibwezi towards the coastal Nyika Plateau (259m-747m above sea level). 4. 100 km long linear Chyulu Hills mountain range, running northwest-southeast, edge the County's southwest limits, while the Yatta linear plateau, running northwest-southeast, edges the County's northeast limits. Makueni's unique landscape profile configures the County's drainage pattern in a very specific way. Here, striations of the contoured undulated uplands host a dense rivulet network that gravitates, albeit with irregularity of flow, towards the low-lying east. These successively merge into larger rivers, including, Thwake, Kaiti, Kikuu, Muooni, Kiboko, Kambu, Tsavo, Mtito Andei, Kambu and Kiboko. The latter eventually channel their waters into the giant Indian Oceanbound Athi River, all of which slowly meander across the County's bottomland

ii) Water resource

Makueni County has three perennial rivers, the Athi, Kiboko, Kibwezi and Masongaleni. Other major rivers, including Thwake, Kaiti, Muooni, Kikuu, Thavu, Kambu and Mtito-Andei, are seasonal and subject to cyclical droughts. There are 4 springs, Iwani, Umanyi Kibwezi, and wetlands in places such as Kiboko, Mang'elete and Thange. Despite having a dense network of rivers, Makueni is a water scarce County. It is estimated that the average distance to a water point, particularly in the lowlands, is currently 5 kilometers. This is attributed to the relatively lower density of rivers compared to the uplands. However, the hills in the uplands, as well as the lowlands' sandy riverbeds the hold significant acquirers which are prolific throughout the year and are abstracted by means of boreholes and riverbed excavation. There are no surface water masses in County, although numerous swamps dot the entire territory, which temporarily hold water during the wet season. The County has over 159 dams and water pans including some privately-owned ones. Major projects include Kaiti sand dam which has the potential to supply water to Wote town with a capacity of 400M3 per day, Kwa Ndulu earth dam in Nguu/Masumba, D4 dam in Kiima Kiu Kalanzoni, and Kwa Luma and Kwa Mbila dams in Kathonzweni ward. Water availability for agricultural and household purposes is expected to improve tremendously with the completion of Thwake Dam, currently under construction. The area with high groundwater potential (Wote, Kiboko, Makindu, Kathonzweni, Tawa, Ukia and Mumbuni) constitutes about 38.93 % of the County while 52.78% (Kiima Kiu and Konza) and 8.27% fell in the moderate and low groundwater potential, respectively. These aquifers are however threatened by degradation of upland water catchments, encroachment and destruction of lowland riparian vegetation and uncontrolled sand harvesting upon river beds.

Supply of clean and portable water is hampered by heavy siltation of water channels, limited distribution network, with reticulated water found only in a few urban centers. Reliance on boreholes, shallow wells and roof catchment serve to increase water availability.

4.3 Geology and Soils

The undulating uplands which have their origin in the tectonic movements responsible for the Great Rift Valley's formation, host a substratum of erosion resistant metamorphic granitoid, folded into very steep hills, topped with a moderate layering of rich volcanic soils. The rocks have undergone significant weathering and fracturing making it possible for them to play an important role in the workings of the hydrological system, particularly as a mechanism for groundwater recharge, thereby making them highly aquiferous. This latter quality is the reason for their christening as crying hills. On their part, the lowlands' pre-cambrian metamorphic sub-strata, equally composed of weathered and fractured gneisses and schists, is overlain by a thin profile of sandy clays with low dry-season water retention properties, although the sandy rivers host substantive aquifers. The County's soil distribution pattern is a direct consequence of its geology. Soil types range from clayey black cottons over the Konza steppe, dark

sandy loams atop uplands of the northwest, to red sandy soils alongside the Yatta plateau, and sand clays upon the Kibwezi plain

4.4 Vegetation

The County's land cover profile ecosystem structure is greatly influenced by variation in altitude, climatic patterns and distribution of soils. The County is generally dry and precipitation significantly low compared to other areas in Kenya. It is largely arid and semi-arid and usually prone to frequent droughts. Consequently, moderate rainfall in the uplands support a vibrant vegetation cover while depressed rains in the lower parts only allow for stunted vegetation and which likewise influence the land cover profile. Sandy loams, which are localized in the highlands, are generally high in fertility, and together with high precipitation, allow a dense vegetative forest cover to flourish. Black cotton clays of the Konza steppe, as well as sandy clays of the Kibwezi plain, are generally low in fertility, and given the interceding dry climate, host vast stretches of savannah grasslands, scattered acacia trees and other shrubbery. Approximately 40% of the county is covered by vegetation. Of this, 90% is natural indigenous vegetation

4.5 Wildlife

The County has varied wildlife species, most of which are localized at the Tsavo National park which lies in the southern part of the County. There is also a great variety of bird life both within and outside the Tsavo and in Kiboko sanctuary.

the county has; 3 national parks, 4 hills, 2 KWS camps. There are 97 animal types with a population of 20360.

4.6 Settlement and peopling

The county has a total population of 987,653 of which 497,942 females and 20 intersex persons. There are 77,495 household with an average household size of 5.8 persons per household and a population density 6 people per square kilometre.

4.7 Education

Makueni County has a total of 1300 Early Childhood Development Education (ECDE) Centers. The County also has a total of 1021 primary schools, 968 of which are public and 53 of which are privately-owned.

4.8 Health

Makueni County has a total of 314 health facilities: 1 County referral hospital, 43 level three hospitals previously referred to as health centers and 176 public dispensaries, thirteen (13) Level 4 public hospitals. The county has 2 private hospitals, 49 clinics and 30 dispensaries.

4.9 Land Uses Adjacent to the Site

The neighbourhood, where the proposed development is located is characterized by mixed use land use. These include;

a) Agricultural use; generally, land use in this area is zoned for agricultural use with rural residential set up. Several homesteads were noted several meters from the proposed project site.
b) Commercial developments; the proposed site neighbourhood has existing commercial developments such as the Makueni Funeral Home and woodland gardens hotel
c) Offices development; offices such as Athiani Housing cooperative society Ltd and the Muungano Party are situated less than 700 meters from the proposed site.
d) Institutions; learning institutions from primary, secondary and tertiary levels include; Muambani Secondary school, Makueni girls and Wote technical Institute
e) Shopping centers; Kunoa and Kivandini shopping centres

CHAPTER FIVE: PUBLIC CONSULTATION AND PARTICIPATION

5.1 Purpose of Consultations with Community/Key Stakeholders

Public consultation/ participation is a fundamental principle of the EIA process contributing immensely to the successful design, implementation, operation and management of the proposed project. It involves consultations with the project affected persons/neighbors' and stakeholders, documenting their concerns, assessing potential impacts and exploring avoidance and mitigation options. The methodology entailed mainly stakeholder identification and consultation through convened public meetings, use of open and closed ended questionnaires, and interviews. The exercise aimed at disseminating information to interested and affected parties(stakeholders), soliciting their views and consult on sensitive issues in order to add value to project design considerations. It was also used in gathering environmental and socio-economic data, understanding likely impacts, determining institutions and individual preferences, project alternatives, and, designing viable and sustainable mitigation measures. Public consultation and participation for the proposed project was conducted in line with the stipulations of EMCA cap 387 and environmental (impact and assessment and audit) regulations 2003 under the jurisdiction of NEMA regarding environmental impact assessment (EIA).

The main purpose of carrying out consultations with community and key stakeholders was to obtain views and concerns from the project affected people regarding the proposed project so as to incorporate their contribution into the project development to safeguard the environment and the interest of key stakeholders particularly the local community and project area leadership and agencies directly or indirectly affected by the project.

Stakeholder consultation was conducted to disclose the details of the proposed project, to inform the stakeholders of any potential negative impacts and elaborate on the positive aspects so that informed decision is made by the stakeholders.

The public consultation exercise was aimed at achieving the following specific objectives:

- Providing clear and accurate information about the project to the affected communities
- Obtain main concerns and perceptions of the population and their representatives regarding the proposed project
- Reducing conflicts through early identification of contagious issues
- Collection of additional baseline data/ information on the project area community;
- Conduct further stakeholder and community consultations and sensitization; and
- Provide the project area community and stakeholders with an opportunity to directly interact with the project developer through the EIA Consultants and ask questions, raise issues and

concerns pertaining to the proposed project and contribute to the identification of project impacts, mitigation measures and project alternatives.

- Facilitate consideration of project alternatives, mitigation measures and trade-offs;
- Ensure that important impacts are not overlooked and benefits are maximized;
- Provide an opportunity for the public to influence project design in a positive manner thereby creating a sense of ownership of the project.

Improve transparency and accountability of decision-making; and increase public confidence in the Environmental Impact Assessment process and the proposed project's undertaking.

5.2 Approach to Consultations with Key Stakeholders

The ESIA team employed three main methods of consultations to get the data presented in this report. These are:

- Meetings and discussions with Key Stakeholders;
- Questionnaire administration and interviews; and
- Convening of Public Consultation Meetings (PCMs) within the project affected persons.

Key informants included local administration/leaders and community representatives, religious leaders, Private establishments/companies and general members of the community.

5.2.1 Public Consultation Meetings

For the community stakeholders, the office of the County Commissioner through the Assistant County commissioner and Local Senior Chief assisted in communicating/announcing the planned public meeting (Baraza) to the general community. Communication was done through announcements in the; local churches, chief barazas, messages to various WhatsApp groups and printed letters that were put in different areas within the project area. Fourteen (14) days notice was given to allow adequate dissemination of the information to all project affected persons.

Its worth noting that the first Consultative/participation Meeting was held on 4th August 2022 outside the proposed project site. Documented minutes were submitted to NEMA and will also be annexed for reference.

The second consultative meeting was held on 26th October 2022 at the proposed project site and was attended by 127 stakeholders. Majority of the stakeholders present (over 100 people) supported the proposed development with only Five (5) people present raising their objections. The issues raised by the 5 stakeholders included;

- who should be invited to the meeting

- what was the outcome of the first consultative meeting,
- what was the criteria used to communicate the planned meeting,
- if the input of the immediate neighbours has more weight as compared to the other stakeholders
- and decrease in value of land around the proposed project.

All the issues were responded to as captured in the minutes annexed.

Those in support of the proposed funeral home cited many reasons, some of them included;

- Only one Funeral home (Makueni funeral home, situated 900M from the proposed site) exists in the entire area and enjoys business monopoly
- The proposed funeral home will create employment opportunities during all stages and priority will be given to the locals
- The same community approved construction of the existing funeral home and they have no objection towards the proposed one

Upon the conclusion of the meetings questionnaires were filled by majority of the members present airing their views.

Minutes of the meetings were recorded and are attached as Annex 1 &2 while the filled stakeholder questionnaires have been given as Annex 3 of this report.

Notice inviting members of public to the public baraza

Direct Interviews

Direct interviews were used to get responses from the project proponent whose comments were sought through engaging the project unit in discussions about the proposed project and other related issues. Some respondents chose to give their views/concerns through interviews rather than filling a questionnaire.

5.3 Socio-economic Impacts

The stakeholders were appreciative of the fact that the consultancy team involved them on time.

***Employment*:** Most respondents pointed that the proposed project will create employment to people and especially youth in the community in all phases of the project. This will also directly contribute to the economy of Makueni County and the wider Kenya.

5.4 Environmental views

Waste Management: Waste disposal was highlighted by the local communities as one component from the project activities that will pollute the environment if not properly handled. Members present proposed waste management methods such private contractor or county government disposal servicesfor non biohzardous waste, use of incenerator for harzardous waste and septic tanks for the liquid waste.

Air quality: Respondents were of the opinion that the proposed project will affect level of air quality in the area through dust generation during construction phase. A number of respondents proposed planting of trees to minimize deterioration of air quality. They also recommended sprinkling of water to reduce dust. The waste water during borehole drilling and construction will be disposed in the project site to reduce the dust. In addition the Concrete perimeter wall will minimize effects of dust to the immediate neighbourhood.

Traffic: the respondents were of the opinion that the proposed project will lead to an increase in both vehicular traffic generation with the area during transportation of materials. These respondents proposed that the project proponent should ensure that materials are not transported during rush hours (Before 8am).

It was noted that the anticipated increase in traffic will necessitate improvement of roads in the area leading to convenient access to various community facilities and services during all-weather seasons.

The stakeholders/project affected persons interviewed and consulted via questionnaire administration collectively pledged their support for the proposed development project citing business growth and increased employment opportunities during all project implementation phases. They however noted a few safety risks to the public and the workers at the site that called for mitigation as well as suggesting corrective measures for the already identified safety risks and issues related to the proposed

development project. Given the mutual consensus by the majority of residents, NEMA should therefore grant the proposed development project Environment Impact Assessment license for its timely implementation as the few impacts highlighted have been fully addressed in the Environmental Monitoring Plan provided in the Environment Impact Assessment report.

Images from the consultative meeting are attached below






Images from a public baraza held on 26th October 2022 at the proposed project site

CHAPTER SIX: PROJECT ALTERNATIVES

6.1 Introduction

In deciding on the type of developments to be included in the project site, the proponents considered various alternatives. Three options were considered as outlined below. Note that for some issues, little data is available on which to base the assessment, and that many of the judgments are subjective. Also, despite a number of detailed site alternatives at project proponent's discretion, the option adopted in this project is informed by excellent quality and minimum loss. It's worth noting also that only those alternatives with the potential to materially affect the outcome of the environment have been discussed here.

6.1.1 Zero Option/ No Development

The zero option in respect to the proposed project implies that the status quo is maintained. This option is the most suitable alternative from an extreme environmental perspective as it ensures noninterference with the existing conditions. This option will however, involve several losses both to the landowner and the community as a whole. The landowner will continue to pay rent on the plot while the property remains underutilized. The Option is the least preferred from the socio-economic and partly environmental perspective due to the following factors:

The landowner will continue to pay rent on the plot while the property remains idle. The No Project Option is the least preferred from the socio-economic and partly environmental perspective due to the following factors:

- The economic status of the Kenyans and the local people would remain unchanged.
- The community will not have an alternative funeral home i.e the current Makueni funeral will continue to enjoy the monopoly
- No employment opportunities will be created for the locals

6.1.2 Relocation Option

Relocation option to a different site is an option available for the project implementation. At present the landowner/developer does not have an alternative site. The developer has previously purchasesd land elsewhere to accommodate the proposed development. However, the County Planning policies could not approve the change of user. The proponent had to seek an alternative land in an area where similar developments are existing.

Secondly, project design and planning before the stage of implementation will cost the developer hundreds of thousands of Kenya shillings. Whatever has been done and paid to date will be counted as a loss to the developer. Assuming the project will be given a positive response by the relevant authorities including NEMA, this project would have been delayed for about two (2) years period before implementation. This is a delay that our economy cant ill afford. This would also lead to a situation like No Project Alternative option. The other consequence of this is that it would be a discouragement for private/local investors.

6.1.3 Alternative Land use

The proponent has no option to use the land for other purposes other than proposed project. A change of user has been obtained from agricultural to commercial use.

6.1.4 Proposed Alternative

Various alternative methods for the proposed project were considered, however in all instances the outstanding difference was either material or technology used but development of the proposed project emerged as the most plausible option according to the project area setting and demand.

CHAPTER SEVEN: IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

7.1 Introduction

Several environmental and social impacts (positive and negative) associated with the proposed project were identified through the use of consultants' judgment and consultation methods. Operation of the proposed project will generate both positive and negative social, economic and environmental impacts. This study report details measures for monitoring and management of these impacts during the life cycle of the proposed project. During the establishment, installation, construction, and operation of the development project, the main responsibility for the incorporation and monitoring of mitigation measures will lie with the project proponent and the contractors undertaking the project.

7.2 Positive Impacts

i. During project construction and operation, the local community will benefit from direct employment in provision of skilled and semi-skilled labour where necessary.
ii. Availability of alternative funeral home within Wote township to end the existing monopoly
iii. Sourcing of locally available construction materials like aggregates, sand, gravels, ballasts, hard core materials, cement thus boosting the local economy.
iv. Economic gains by the local communities and the county government in terms of revenue generation.
v. National and county economy improvement.
vi. Exchange of technical knowhow and skills as many local people will learn how to use and do different jobs upon proper training and acquisition of the necessary requisite skills.
vii. Maximum utilization of the land
viii. Source of income to the proponent

7.3 Impact Classification

Anticipated Significant Impacts

The impacts of the proposed project activities on the environmental elements are both positive and negative. The magnitude of each impact is described in terms of being significant, minor or permanent, short-term or long term, specific (localized) or widespread, reversible or irreversible. Most of the impacts have been addressed in the proactive design of the project and other mitigation measures can only be guaranteed through active and responsible management committed to the propositions of the environmental management plan.

The adopted assessment criteria of the significant impacts are as shown in the table below:

Table 5: Assessment criteria of significant impacts

Key	**Type of impact**	**Key**	**Type of impact.**
++	Major positive impact.	+	Minor positive impact.
- -	Major negative impact	-	Minor negative impact.
0	Negligible/zero impact	NC	No change
Sp	Specific/localized	W	Widespread.
R	Reversible	Ir	Irreversible.
Sh	Short term.	L	Long term.
T	Temporary	P	Permanent

On the basis of information gathered during both the desktop and field study, the potential environmental impacts of the proposed project are as tabulated below;

Table 7: Potential environmental impacts

Environmental Impact	**Type of Impact**
Contamination of air quality .	-L ,Sh,Sp
Fire outbreak/accidents	++T
Increased noise levels leading to nuisance to the residents.	Sh, T, Sp,--
Loss of soil cover, flora and habitat for some fauna.	-,Sp, R
Poor aesthetics. Risk of people and animals falling into the excavated site foundation Increased waste production. Poor waste management	T, R - Sp,- L, - --,
Accidents due to unsafe work practices, incompetency or occupational hazards. Risk to public safety i.e. to onlookers.	-.Sh, -
Risk of accidents due to increased vehicular movement in the area.	--, Sh, Sp
Loss of jobs leading to Stress, anxiety and frustrations.	-, Sp
Irresponsible social behaviour.	-,Sp
Creation of jobs for locals and Improved infrastructure.	P, L, ++

7.4 Environmental and social negative impacts during pre-construction stage

7.4.1 Social Impacts

i. Creation of employment opportunities for many during the design, planning, material acquisition and operation stages.
ii. Spread in anti-social behaviour due to tribal interactions resulting in the spread of diseases like HIV/AIDS.
iii. Increase in insecurity cases due to mingling of different people of different cultures.
iv. Transfer of technical knowhow between the locals and the experts working at the site.
v. Growth of small businesses within the area.

7.4.2 Environmental Impacts

i. Preparation of the area through site excavation and overburden soil removal.
ii. Dust from the excavations meant to prepare the site for installation and construction activities.
iii. Noise from the project activities
iv. Risks to public safety as a result of proposed activities implementation.

7.5 Negative impacts during project construction phase

7.5.1 Social and environmental impacts

Dust emission/Air pollution

The large number of machines, vehicles, construction activities like transportation of materials, will generate dust and gaseous emissions from vehicles, Lorries, trucks, using fossil fuels. The pollutants generated by these activities are considered to be harmful to human health and other biotic communities in the area.

Potential mitigation measures

i. Water will be sprinkled within the site to minimize amount of dust emitted.
ii. The proponent will be responsible for maintaining equipment and machines to minimize exhaust fumes released to the atmosphere.
iii. Construction equipment and vehicles will be turned off when not used for extended periods of time.
iv. Use of low sulphur or no sulphur diesel fuel.
v. Stockpiles of the finished products (finest aggregates) for concrete mixing and construction will be constantly kept damp by the action of water misting through the utilization of water sprinklers or covering with tarpaulins.
vi. Provision of mouth plugs and other gears to the workers to protect them from inhaling the dangerous gases.
vii. Conduction of regular monitoring and evaluation of air pollution levels within the project area.

Excessive Noise and Vibrations

The main source of noise from the proposed project will be from construction works, and operation activities. This noise may reach a peak of 50-80 dB (A) one metre away from the source and constitute a hazard to the workers and an environmental nuisance to human receptors. However, this noise lasts for only 5-10 seconds.

In the proposed project site, noise emission will be generated by the following activities:

i. Transportation of materials by trucks and lorries to the construction site,
ii. The vehicular and truck movement within the site.

Noise and vibration can cause irreversible damage to human beings if not controlled.

Potential mitigation measures

i. The machines and equipment should be serviced and inspected regularly.
ii. Workers in construction areas to have personal protective equipment such as earmuffs, gumboots, overalls, helmets and earplugs.
iii. Sensitize drivers to switch off vehicle engines when not in use and to avoid unnecessary hooting and revving of vehicles.
iv. Machinery and transport vehicles should be well maintained and serviced to minimize noise resulting from friction.
v. All construction works to be done during day time only, from 8am to 5pm.
vi. Workers should be provided with personal protective equipment such as earmuffs and earplugs when operating noisy machinery and when in a noisy environment.
vii. During the project duration, noise monitoring exercises will be carried out as part of the Environmental and Social Management and Monitoring Plan.
viii. Increase manpower and reduce the use of machines

Impacts on flora & fauna

The proposed project area has flora and fauna that will be affected by the proposed development.

Potential mitigation measures

i. Re-vegetate areas to stabilise the landform and to give the vegetation maximum time to establish during operation phase.
ii. Establishing of a flower garden round the site through landscaping.

iii. During decommissioning the proponent shall restore the site through revegetation using grasses and indigenous trees.

Surface drainage

The drainage of the general site is necessary to enhance effective flow of the much-anticipated surface run-off from impermeable areas within the site.

Potential mitigation measures

i. Drainage channel should be fitted with oil interceptors to ensure all the hazardous substances are not released to the environment(especially from the garage)
ii. Drainage works will be re-constructed to mimic natural drainage patterns.
iii. Accumulated storm water from surface run-off and waste water from the site shall be drained from the site to prevent mosquitoes breeding and incidences of water related diseases such as bilharzia and accidents .

Solid waste

During the project cycle, solid and liquid wastes will be generated which will require disposal in an appropriate and environmentally acceptable manner. If solid waste is not removed promptly away from the generation points it accumulates into large heaps posing a health hazard.

Wastes which will be generated include the following:

i. General construction waste (e.g. scrap metal, concrete);
ii. Excavated materials from earthworks (e.g. pile foundations (overburden soil);
iii. Material and equipment wrappings;
iv. Oil spillage/wastes generated by general site practices (e.g. vehicle maintenance/servicing); and
v. Liquid wastes generated by site workers during construction.

Potential mitigation measures

i. Bins shall be placed in designated areas and be well labelled.
ii. Sorting of solid wastes before disposal should be practiced.
iii. Solid wastes which cannot be reused at the site to be collected by a licensed waste handler at regular intervals.
iv. A storage skip shall be provided for storing accumulated waste temporarily before collection by a waste handler.
v. All waste shall be handled, stored and transported as per the provisions of Waste Management Regulations of 2006.

Liquid waste

The workers will be provided with toilets for use during construction phase

Oil waste pollution

Petroleum oils and grease used in vehicles and construction machinery may spill or leak into the ground or water system within the area.

Potential Mitigation measures

i. The designated garage/workshop section should be of hard surface and fitted with oil/fuel interceptor.
ii. All vehicles and machineries must be serviced at the service bay which is built to the required specifications of a service bay.

Hazardous waste material management

Hazardous materials are known to pose serious risks if released to the environment. The management of hazardous materials must therefore include the appropriate storage of these materials, and preparation for leaks and spills to ensure that the risk of hazardous materials being released into the environment is minimized.

Potential mitigation measures

i. Provide high-performance grease traps and oil traps near workshops and places where vehicles and machinery are parked.
ii. Locate storage areas away from waterways or areas prone to flooding.
iii. Such spillage must not be cleaned up by hosing, or sweeping . Equipment and soil contaminated by fuels, lubricants, and hazardous materials and clean up substances which cannot be salvaged must be disposed of in an approved waste facility.
iv. Develop contingency plans to address spills and leaks.

Occupational Health and Safety (OHS)

As provided for in the Occupational Safety and Health Act of 2007; the safety of those in the workplace should be given the weight it deserves.

The following will be given priority.

i. Proper personal protective equipment i.e. safety boots, helmet, goggles, respiratory equipment and gloves shall be used at all times on the site as condition warrant and workers trained on the proper use of tools.
ii. Firefighting equipment will be strategically placed and all employees trained on how to use them.

iii. Sanitary facilities shall be provided and cleanliness shall be ensured as per set standards.
iv. A fully equipped first aid kit shall be provided and shall be managed by qualified persons.
v. the contractor should ensure the team is supplied with food from the cafeteria
vi. Proper treatment of drinking water.

Accident prevention

The following rules will be observed to avoid accidents both during establishment, renovation, installation and operation of the liquefied petroleum gas terminal plant;

i. Ensure that the operational manuals are available and accessible for every vehicle, equipment /machinery.
ii. The proponent will ensure that all buildings, fixed plants, compressor room and mobile equipment are fitted with fire-fighting equipment, such as fire extinguishers, fire blankets.
iii. Properly maintain all machinery and equipment to prevent premature failure or possible accidents.
iv. Develop an emergency response plan.
v. Maintain appropriate fire-fighting equipment at a work site.
vi. Only properly trained employees to operate equipment or machinery and proper instructions in their safe operation shall be provided.

Impacts on traffic

Additional traffic density will occur during the construction and operation phases of the proposed project. Lorries and trucks accessing the site may be expected to contribute towards the prevailing traffic along the main road.

Mitigation Measures

Maximum speed limit within the project site area will be 20km/hr for both operation vehicles.

Speed limits and all other road signs and traffic rules shall be strictly observed.

Vehicles will be used for the purposes to which they are intended only.

Deployment of traffic marshals in the affected road to control traffic flow.

Disaster management

Emergencies and disasters are a reality of everyday life. Workers/people must therefore be sensitized and prepared on how to react to either emergencies or disasters during the construction, installation,

and operational phases of the plants. Absence of such plans may be risky since there would be no guidelines on how to handle or control emergencies if they occur.

Mitigation Measures

i. The proponent should initiate and develop effective Emergency Response Plan (ERP) to cater for various eventualities such as fire outbreaks, and other accidents/incidents that are likely to occur.
ii. Emergency Response Plans must be properly documented and made available to all.
iii. Regular drills should be conducted on possible incidences.

Emergency Preparedness and Response

An emergency preparedness and response plan shall be established and implemented to respond effectively to emergency situations on the site which include, but not limited to, fire, flooding, major incident occurrence and security alert. The emergency plan should establish evacuation procedures; assign responsibilities to specific individuals; provide notification to the Authority and outside agencies such as fire station, hospital, etc.; establish means of communications; assign locations for emergency centres; provide in-house emergency responses; and include site security and controlled access.
The information developed as part of the emergency plan should be documented and communicated as appropriate within the site to ensure that the site organization can respond to emergency situations. The Contractor should establish a program of training, drills and exercises to test and evaluate the effectiveness of the plan.

Fire risk and control

The proponent must put adequate measures in place to prevent and control fire risks.

Mitigation measures

- The site should be kept clean and free from fire hazards and litter.
- Avoid naked fires (post notices to prohibit smoking within the site).
- Install fire control appliances (portable fire extinguisher; both CO_2, dry powder and water type, and sand buckets), and employees should be adequately instructed periodically on the use of the various fire appliances.
- Conduct regular fire drills
- Regular repair and maintenance program for all equipment.
- Observe safety measures e.g. use of mobile phones, lighting.
- Full compliance with Fire Risk Reduction Rules, 2007.

7.6 Negative Impacts during Post-construction

7.6.1 Social impacts

Security

Security of the site and those working within it is of utmost significance.

Potential mitigation measures

i. Being vigilant of undesired characters and restrict the area from any trespassing.
ii. The project site should be secured using a perimeter wall to keep away trespassers and be gated allowing only authorized personnel to access the site.
iii. Deployment of security personnel from a contracted security firm to boost the site security.
iv. Registering the vehicles and people visiting the facility through recording of their details in a special book.
v. Install security surveillance cameras

Socio-Economic Aspect

The operation of the proposed facility will create employment to skilled and semi-skilled personel. The various employment opportunities include; the cleaners, security team, drivers, health and safety consultants, drivers, morticians,environmental consultants, finance/accounts, technicians, managers amongst other opportunities.

Generally, the business will be a source of income to the developer

Mitigation measures

i. The community members should be given first priority when employment opportunities are advertised
ii. Provide workers with job related protective gears
iii. Participate in community based social responsibility programmes

Increased HIV/AIDS and other Sexually Transmitted Infections (STIs)

The proposed project operation will result to immigration of people from outside the local areas in search of employment opportunities. Therefore, this increase of people in the project area may lead to increased incidences of sexually transmitted diseases which may exacerbate HIV/AIDS situation among the local residents.

Potential mitigation measures

i. Avail condom dispensers at the facility for staff and the general public

ii. Strengthen advocacy through awareness training in HIV/AIDS and other Sexually Transmitted Infections to the community.
iii. Encourage the use of preventive measures like condoms and abstinence.
iv. Provide HIV/AIDS Counselling and testing services for workers at the construction site.

7.6.2 Project decommissioning

In case the project has to be decommissioned, there will be many waste materials resulting from the stoppage of operations which will include demoltion waste, metal equipment like bins, waste metals etc.

Mitigation Measures

i. Use of proper equipment and tools.
ii. Supervision by competent engineers.
iii. Provision of adequate personal protective equipment to all demolition workers.
iv. Proper handling and disposal of debris.
v. All the equipment and scrap metals should be removed from the site.
vi. Backfilling any surface openings.
vii. Restoring/rehabilitating the site to acceptable standards.
viii. All the wastes to be disposed by NEMA authorized waste handler and to NEMA approved dump sites.

CHAPTER EIGHT: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

8.1 Introduction

This section presents the environmental and social management plan (ESMP) for the proposed project. ESMP is an important process of ensuring project sustainability, environmental and social protection. Whereas efforts are usually made to develop mitigation measures for a proposed project, it is during the operation lifespan of the project that actual impacts are noted or experienced.

It is therefore important to integrate in the environmental and social impact assessment process, an environment monitoring and management plan that includes the monitoring of the progress of mitigation measures being implemented while also monitoring the project for any new negative impacts that were not earlier considered or anticipated.

The proponent shall ensure that the Contractor understands and implements all specified mitigation measures during the construction period. The proponent's Supervising Engineer is responsible for assessing the Contractor's Environmental and Social Management Plan and internally implements the Management Plan to ensure that the Environmental and Social Impacts are monitored and managed in an environmentally and socially acceptable manner. Monitoring systems should be set up by the Proponent during the operational phase, so that potential environmental problem areas can be detected well in advance and the appropriate remedial action carried out.

The Proponent shall have a checklist of items that need to be monitored as a matter of routine or periodically over agreed intervals, depending on the nature of the aspect to be monitored. The types of parameters that can be monitored may include proposed mitigation measures or design features, or actual impacts. Depending on the nature of impact or aspect to be monitored, monitoring can be done as part of routine or periodic maintenance. However, socio-economic and ecological parameters can be effectively assessed over a longer time span.

8.2 Approach to environmental and social impact management

The proposed ESMP will be the responsibility of the Health Safety Environment department. However, it will have links with other departments such as operation and maintenance. Table below presents the range of approaches that will be used to manage potential impacts of the proposed project.

Table 8; Approach used to Manage Potential Impacts

Approach	Description
Avoidance	Avoiding activities that could result in adverse impacts and/ or resources or areas considered sensitive
Prevention	Preventing the occurrence of negative environmental impacts and/ or preventing such an occurrence having negative impacts
Minimization	Limiting or reducing the degree, extent, magnitude or duration of adverse impacts through scaling down, relocating, redesigning and or realigning elements of the project
Mitigation	Measures taken to minimize adverse impacts on the environment
Enhancement	Magnifying and/ or improving the positive effects or benefits of an impact
Rehabilitation	Repairing affected resources
Restoration	Restoring affected resources to an earlier (possibly more stable and productive) state, typically 'background or pristine' condition

The environment, health and safety management cycle has four broad components:

1. Planning.
2. Design implementation (covering the construction and operation phases)
3. Checking and corrective action
4. Management review

8.3 Responsibility and Accountability

The Proponent will utilize the existing arrangements in the implementation of the ESMP during planning and design, construction, operation and decommissioning/closure. The Proponent is accountable for ensuring that resources are made available to effectively implement the ESMP and necessary environmental management measures arising from the project. The proponent will develop proposed organizational structure for the proposed Project, showing the reporting lines of staff to be involved in environmental management of the project. The Project Manager will take responsibility for the day to day running of the project and will oversee the detail of implementation of the ESMP during construction phase while during operational and decommissioning phases, will be managed by the

Occupational Health and Safety Manager. The two managers, QEHS Manager, HSE will be responsible in implementation of the ESMP.

Functions of the environmental, health and safety management of the project will be the responsibility of the Health, Safety and Environment (HSE) Manager who reports directly to the chief Operations Manager. The HSE Manager will be supported by EHS Executive.

Environmental monitoring will be undertaken by the EHS Executive, and independent audits of environmental performance will be conducted from time to time by independent NEMA approved environmental experts.

8.4 Management of Contractors.

The Contractors will be responsible for implementation of some of the ESMP commitments. However, the Ultimate responsibility for meeting all commitments lies with the Proponent.

The Proponent will commit contractors to meeting the relevant responsibilities by means of specific conditions in the contracts of appointment. The Proponent will provide additional training to improve the capacity of the contractors in ESMP areas of concern. The Proponent will put in place the following construction phase contractor arrangements to support ESMP implementation:

Contractors will have certain key environmental line functions included in their job descriptions and performance criteria. Critical among these is the Construction Manager. The Construction Manager will be accountable for environmental (including social) management during the construction phase.

Specific responsibilities for the Construction Manager will include Regular performance reviews and undertake corrective and/or remedial action where this may be required. Regular (at least monthly) liaison between the Construction Manager, the Project Manager and the HSE Manager and his/her team must be carried out. At the commencement of the construction phase, weekly meetings should occur.

Meetings should review implementation of EMP requirements, highlight issues of concern, identify required interventions and prescribe corrective actions and schedule, and allocate budget and appoint responsible parties. The plant Manager should receive minutes of meetings and should be invited to attend meetings at least once in a month. A code of practice for construction teams will be prepared and implemented. This code will guide the management and behaviour of construction teams. The code will include items relating to health safety and community relations.

Information on the implications of construction will be disseminated before construction starts. Contracts will be key tools in managing many potential negative impacts such as transport related incidents. They will specify required environmental and social practices.

8.5 Training, Awareness and Capacity Building

The Proponent will ensure that all contractors' staff members are inducted on health and safety, environmental and emergency response procedures. The Proponent will use written

(newsletter/posters/toolbox talks) and verbal (as part of routine briefings) communication methods to raise awareness on a range of health, safety and environmental issues

8.6 Monitoring and Compliance Assessment

During the construction phase, the Proponent will monitor and inspect contractors' written records to demonstrate compliance with the ESMP. This compliance monitoring will verify that the responsible parties are implementing the specifications contained in the ESMP. Compliance will mean that the contractor is fulfilling contractual obligations. To determine the effectiveness of the ESMP, the Proponent will use a series of internal and external inspections and audits:

- Internal environmental, health and safety inspections will be carried out once every week by EHS Executive;
- Minor non-conformances will be discussed during the inspection and recorded as a finding in the inspection report. Major non-conformances will be formally reported
- EHS Manager, will arrange for initial and subsequent environmental audits and will provide relevant information required by relevant authorities including NEMA. The audit will be carried out in accordance with EMCA, CAP 387 and its subsidiary legislation, EIA/EA Regulations, 2003. Any negative findings arising from the audits will be addressed accordingly.

8.7 Incident handling and Reporting

An incident can arise from the following:

Significant non-compliance with the ESMP identified during an internal inspection

Any non-compliance identified by either the authorities or an external audit

Accidents or spills resulting in potential or actual environmental harm.

Accidents that could result in injury to staff, visitors to site or the surrounding communities

Significant complaints.

All incidents will be formally recorded and noted in the General Register in accordance with requirements of OSHA 2007.

8.8 Checking and corrective action

Checking and if necessary, implementing corrective action, to ensure that required ESMP management activities are being implemented and desired outcomes are achieved. As such this component includes four key activities namely:

- Monitoring selected environmental quality variables as defined in the objectives and target
- On-going inspections of the operational controls and general state of the operations.
- Internal audits to assess the robustness of the ESMP or to focus on a particular performance issue.
- External audits to provide independent verification of the efficacy of the ESMP.

8.9 Corrective Action

There are several mechanisms for implementing corrective action, both during the construction and operational phases. The main mechanisms to address transgressions include verbal instruction (in the event of minor transgressions from established procedure, usually following a site inspection); written instruction (identifying source(s) of problems, usually following an audit) and contract notice (following possible breach of contract).

8.10 Reporting

The findings of all of the above will be structured into instructive reporting that provides information to all required parties on EHS performance, together with clearly defined corrective action where this is seen to be required. Both the monitoring and inspections are to be reported continuously.

8.11 Management review

The Proponent will organize for formal management review at defined intervals both during the construction and operational phases. The purpose of the management review is for senior project management to review the environmental management performance during the preceding period and to propose measures for improving that performance in the spirit of continuous improvement.

8.12 Liaison

Throughout the project cycle, the Proponent will liaise with authorities especially NEMA Kenya to ensure ongoing feedback on the environment performance of the project

8.14 overview of the Proposed Project

The ESMP addresses the planning and design, pre-construction and construction, operational and closure phases of the proposed project.

8.14.1 Planning and design

Planning and design is necessary to ensure that mitigation and impact management can be effectively implemented in the context of the HSE approach. Planning involves the following activities:

i. Identifying and defining the various environmental aspects and related potential positive and negative impacts that can result from the company's activities.
ii. Establishing a procedure to identify legal and other requirements to which the organization is subject
iii. Identifying and defining appropriate mitigation and management measures, including those reinforcing positive impacts.
iv. Establishing and maintaining documented, scheduled environmental objectives and targets at each relevant function and level within the organization. In the case of the proposed Project the environmental aspects and potential impacts will mainly emanate from the site preparation and construction activities.

8.14.2 Construction Phase

The ESMP contains measures to avoid and mitigate impacts and optimize benefits arising from activities during the pre-construction (e.g. clearing of the construction site) and construction phase (e.g. construction of required infrastructure) of the Project. The principal focus of Project management for construction will include: personnel and contractor management and training; conduct and site management; maintenance of complaints register; emergency preparedness; and management and mitigation of impacts such as surface runoff, noise, dust, safety and pollution.

Assignment of responsibility and contractor management is especially important during the construction phase. Contractors will be held to the highest HSE performance requirements to ensure they meet Proponent's, national and international standards.

8.15 Impact mitigation and management

This study identified potential impacts of the proposed project. The subsequent sections provide description of the management plans and programmes within which management and mitigation measures will be implemented. The actions and activities for decommissioning phase are dealt with in the rehabilitation and closure plan which also addresses the mitigation measures that will be ongoing once operations have ceased.

8.15.1 Management of impacts during construction phase

The ESMP will put in place measures to avoid and mitigate impacts and optimize benefits arising from activities during construction phase of the project. The principal focus of project management for construction phase will include:

i. Personnel and contractor management
ii. conduct and site management
iii. land owner relations
iv. Maintenance of complaints register
v. Emergency preparedness; and
vi. Management and mitigation of impacts such as noise, dust, safety and pollution.

Assignment of responsibility and contractor management is important during the construction phase and operation phase the contractor is used to carry out maintenance work. The contractor will be held to the highest EHS performance requirements to ensure they meet national and international standards.

8.15.2 Management of impacts during operation phase

For the purpose of the ESMP there are two principal mechanisms for the implementation of management and mitigation measures:

i. Facilities - these can be either specific facilities that have a dedicated HSE management functions or additions to facilities that are central to the proposed project activity.

ii. Procedures- in a similar vein, procedures can be stand-alone procedures with a dedicated HSE function (such as a waste management procedure) or can be a modification to an existing activity process to affect the HSE management.

8.16 Impacts and mitigation/ management measures

Table 9 presents the ESMP for the proposed project. It covers on the proposed management and mitigation measures for the identified impacts. This information presented addresses the dual objective of the ESMP, namely to fully disclose the commitments to be undertaken by the Proponent to provide managers and staff with a clear framework for ESMP implementation. In addition, the ESMP provides a schedule for the implementation of management/mitigation activities, sub-divided by project phase. The schedule shows at a glance, the timing of the many actions required under the ESMP. It is particularly useful where management/mitigation measures extend across phases

Table 9; Summary of negative impacts and their mitigation measures

Possible impact	**Mitigation measures**
High demand for raw materials	Source from local suppliers, accurate budgeting
Fire Safety	Train all workers in Fire safety procedures Install adequate firefighting equipment and ensure regular maintenance
Vegetation disturbance	Only cut trees within the exact area of development Carry out landscaping after construction phase
Dust emission	Avoid excavation in extremely dry weather Sprinkle water regularly on affected areas
Generation of oil spillage	Liaise with licensed waste oil handlers and carry out regular waste water analysis.
High water demand	Install water conservation pipes, sensitize staff to conserve water
Environmental concern during the construction phase	proponent will liaise with the environmental consultants throughout the construction phase
Workers accidents& hazards	workers to put on PPEs and regular awareness creation
Increased Run-off	construction of drainage channels
Generation of Exhaust emissions	Minimize idling of engines and making unnecessary trips
Increased water Demand	Conservation and storage of water.
Noise Pollution	Increased human resource

	substituting equipment with quieter ones,
Dust emission	Sprinkle water regularly on affected areas
Disposal of Excavated solid waste	Proponent to use only NEMA approved and Makueni County Government approved dumping areas.
Increased use of Building materials	Proponent to source building materials from NEMA approved quarries

Environmental and Social Management Plan (EMP)

EMP for the Planning Phase of the Proposed Development

Time Frame	Environmental Issue	Mitigation Measures	Actors	Status
Planning Phase	Obtaining Development permission as per the County Government Act and the Physical and Land Use Planning Act	-ensure the proposed development adheres to the zoning polices. -Registered Planner to consult all the relevant agencies to obtain development permission for the project.	Proponent Registered physical planner	Change of user obtained
	Building designs as per the building code	-Proponent to appoint an Architect for the project. -Building plans to be designed and submitted by a registered architect. -Building plans to be submitted to County Government prior to the commencement of the development.	Proponent Registered Architect Project contractor	Approvals obtained
	NEMA Approval	-Proponent to appoint NEMA registered Lead Experts to undertake a study report for the proposed funeral home -NEMA to issue an approval of the project.	Proponent Environmental Lead Expert NEMA	EIA process ongoing
	Environmental Awareness	-Position environmental awareness notices and message at the entry to the construction site. -Formulate an Environmental Policy.	Proponent Environment Lead Expert	To be done

	Ensure proper construction workmanship	-Proponent to appoint Main Contractor for the project -Supervision of construction work.	Proponent, Contractor, Engineer, County building inspectors.	To be done
	Ensure effective site management	-Appointment of Site Foreman. -Appointment of Clerks of Works	Contractor proponent	To be done
	Make adequate provisions for accidents and disasters on site. Obtain insurance cover for the employees.	-Obtain insurance to cover all accidents including Workmen's Compensation. - employ an occupational health and safety officer	Proponent	To be done

CONSTRUCTION PHASE				
Noise Pollution and Vibration	-Switch off engines not in use - Construction work to be confined to between 7am to 5pm -Ensure use of earmuffs by machine operators - Provide and enforce use of PPE e.g ear muffs,aprons, gloves - Proper servicing of machinery and equipment (oiling and greasing) - Monitor noise levels as per NEMA guidelines	Proponent and Contractor	100,000	Lack of complaints from the immediate neighbours
Air emissions	- Water sprinkling on driveways or the use of biodegradable hydrant e.g. Terraform polymer will reduce dust emission during construction - Ensure servicing of vehicles regularly - Cover loads of friable materials during transportation. - Control speed of construction vehicles and switch off machines when not in use. - Provide PPE to workers.	Proponent and Contractor	100,000	- Lack of complaints - Workers wearing protective clothing and earmuffs

Risks of Accidents and Injuries to Workers	- Education and awareness to all workers - Procure services of a health and safety officer - Ensure use of appropriate personal protective clothing - Provide First Aid Kits on site - Ensuring stability of the building - Proper supervision	Proponent Contractor	200,000	- Presence of well-equipped First Aid kit Presence of Security Guards on site Presence of a register on the site
Health and Safety	- Provide First Aid Kits on site - Proper signage and warning to public - Provide clean water and food to the workers - The contractor to abide by all conditions including health safety and workforce welfare - Personnel to stick to standard operation procedures - Personnel to wear complete protection gear - Provision of firefighting equipment - Put in place an emergency response plan. - Put in place guideline for operation of machinery and appliances and ensure workers are aware of the same. - Comply with Kenyan safety policy and safe working procedures, laws and regulations	Proponent Contractor	100,000	- Presence of well-equipped First Aid kit - Presence of Security Guards on site - Presence of a register on the site
Solid Waste Generation	- Ensure waste materials are disposed off to County and NEMA approved sites - Use of the 3rs – Reduce, Re-use, Re-cycle - Solid waste to be put in designated areas for appropriate disposal (waste cubicle) - Waste segregation at source - Engage a licensed, competent and effective waste handler	Proponent Contractor	400,000	- Absence of Solid waste on the site
Energy Consumption	- Use electricity sparingly since high consumption of electricity negatively impacts on these natural resources and their sustainability - Use of Standby Generators - Use of renewable sources of energy i.e. solar panels	Proponent Contractor	100,000	- Presence of KPLC power lines - Presence of generator
Excessive Water Use	- Excessive water use may negatively impact on the water source and its sustainability	Proponent	1,000,000	- Metering of water

	- Drilling a borehole - Abstract as indicated in the WRA permit - Installation of toilet flushes with low volume cisterns	Contractor WRA		
OPERATION PHASE				
Solid Waste Generation and Management	- Regular inspection and maintenance of the waste disposal systems during operation phase - Establish a collective waste disposal and management system - Provide waste disposal bins on various stations well protected from adverse weather and animals - Ensure waste materials are disposed off on County approved sites - Engage a NEMA licensed waste handler to transport the waste - Use of the 3rs – Reduce, Re-use, Re-cycle - Installation of an incinerator for management of medical waste	Proponent Contractor	1,200,000	- Presence of NEMA registered waste management companies - Presence of waste handling bins - Presence of incenerator - Absence of wastes
Liquid Waste Generation and Management	- use of septic and soak pit -Regular inspection and maintenance of the waste disposal systems during the operation phase - Proper connection to the septic - Use of separate storm water drainage channel	Proponent Contractor	500,000	- Absence of liquid wastes
Increased loading on Infrastructure services - Increased vehicular and/or pedestrian traffic - Increased demand on water, sanitation services	- Adequate parking within the facility - Have paved driveways - Encourage rainwater harvesting - Provision of increased water storage capacity - Provide adequate storm water management system - Presence of septic tank	Contractor Proponent	500,000	- Absence of runoff - Presence of good roads - Pavements and drainage channels
Traffic	- Provide adequate parking facilities within the project site - Trucks dropping the construction materials to park within the site	Contractor Proponent	Routine operation procedure	- Presence of ample parking in the premises

Increased social conflict	- Increased economic activities –employment generation and income earnings - Encourage good relation with the neighbours through employment of community youths (skilled and semi-skilled)	Contractor Proponent		-Good relationship with neighbours -absence of conflicts
Storm water impacts	- Provide roof gutters to collect and direct roof water to drains - Construct drains to standard specifications - Develop a storm water drainage system and linkage to natural drains	Proponent Contractor	300,000	Absence of Flooding and dampness in the fact
Insecurity	- secure the premise with a perimeter wall and an electric fence - Installation of CCTV cameras at strategic points - Have a entry point that is manned 24 hours - Construction of gate house	Contractor Proponent	400,000	Presence of perimeter wall Presence of day and night security guards
DECOMMISSIONING PHASE				
Building Safety	Assess the condition of buildings to ascertain usefulness	Engineer Proponent	300,000	Engineer and Tests on the building
Land and Building use	Ascertain the Planning development policy	County Physical Planner	200,000	Consultants present
Accidents/Injuries	Securing the Site by fencing off	Contractor Proponent	100,000	Presence of perimeter fence
Un-disconnected Services e.g. Power, Water, telephone,septic	Ensure disconnection of all services Remove all surface and underground cables and wiring	Contractor	200,000	Absence of cabling
Solid Waste Generation	Ensure waste materials are disposed of on County and NEMA approved sites	Proponent/Contractor	800,000	Absence of Debris

(Demolition waste)	Ensure re-use of materials that can be re-used -Use of the 3rs – Reduce, Re-use, Re-cycle			
Noise and Vibration	- Ensure use of serviced equipment - Switch off engines not in use - Demolition work to be confined to between 8am to 5pm - Ensure use of earmuffs by workers	Proponent Contractor	100,000	Lack of complaints from the neighbours

CHAPTER NINE: PROJECT DECOMMISSIONING

9.1 Overview

Decommissioning is the final disposal of the project and associated materials at the expiry of the project. It mainly involves the proponent removing all materials resulting from demolition from the site and restoring the site to the near original state.

i. **Demolition works**

Upon decommissioning, the project components including structures, paved areas, drainage systems, and hoarding structure, a good amount of solid waste will be generated. The wastes should be reused or if not reusable, disposed of appropriately by a licensed waste disposal company.

ii. **Dismantling of equipment and fixtures**

All equipment including electrical installations, finishing fixtures partitions, among others will be dismantled and removed from the site on decommissioning of the project. Priority will be to reuse this equipment in other projects. This will be achieved through auctioning of the equipment to other contractors or reused in another site.

iii. **Site restoration**

Once all the waste resulting from demolition and dismantling works is removed from the site, the site will be restored through replenishment of the topsoil and re-vegetation using indigenous plant species.

Expected Negative Impacts	Recommended Measures	Responsible Party	Time Frame	Cost (KShs)
1. Construction Machinery/Structure & Wastes				
Scraps material and other debris	Use of an integrated solid waste management system i.e. through a hierarchy of options. Wastes generated as a result of facility decommissioning activities will be characterised in compliance with standard waste management procedures. The contractor will select disposal locations and the county based on the properties of the particular waste generated.	Project Manager & Contractor	During decommissioning	100,000
	All buildings, machinery, equipment, structures and partitions that will not be used for other purposes should be removed and reused or rather sold/given to scrap material dealers.	Project Manager & Contractor	During decommissioning	-
	Where recycling/reuse of the machinery, equipment, structures and other waste materials is not possible the materials should be taken to approved dumpsites.	Project Manager & Contractor	During decommissioning	-
Rehabilitation of project site				
Vegetation disturbance Land deformation: soil erosion, drainage problems	-Implement an appropriate re-vegetation program to restore the site to its original status. -During the vegetation period, appropriate surface water runoff controls will be taken to prevent surface erosion; -Monitoring and inspection of the area for indications of erosion will be conducted and appropriate measures taken to correct any occurrences; -Fencing and signs restricting access will be posted to minimise disturbance to newly-vegetated areas;	Project Manager & Contractor	During decommissioning	500,000

Expected Negative Impacts	Recommended Measures	Responsible Party	Time Frame	Cost (KShs)
Social- Economic impacts				
-Loss of income	The safety of the workers should surpass all other objectives in the decommissioning project. -Adapt a project – completion policy; identifying key issues to be considered. -Compensate and suitably recommend the workers to help in seeking opportunities elsewhere. -offer alternative housing facilities	Project Manager & Contractor	During decommissioning	200,000

CHAPTER TEN: ENVIRONMENTAL MONITORING

10.1 Introduction

During the occupational phase, the proponent will undertake a regular monitoring which is intended for proper safety and protection of the environment. The monitoring system will assist in observation, evaluation, assessment and reporting on the performance of different/various variables with regard to the environment.

10.2 Environmental Management System (EMS)

An environmental management system (EMS) is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of development management. An EMS ensures environmental considerations are a priority with other concerns such as costs, product quality, investments, productivity and strategic planning.

10.3 Environmental Management Organization (EMO)

The project proponent will work with environmental experts in identifying ways for the property to improve its environmental performance, setting objectives and targets, monitoring and evaluating implementation.

10.4 Environmental Auditing

Annual environmental audits will be carried out as required under Legal Notice No. 101 of 2003. The audits will serve the purposes of confirming the efficacy and adequacy of the Environmental Management and Monitoring Plan (EMP) developed during the preparation of this proposal.

CONCLUSION AND RECOMMENDATIONS

Conclusion

From the findings of this ESIA project report, the following conclusions and recommendations are made:

i. The proposed funeral home has the support of the stakeholders

ii. The project will be designed, constructed, and operated according to the acceptable construction norms and standards

iii. Though there are a number of potential impacts associated with implementation of the proposed project, it is possible to mitigate them successfully. Successful implementation of the proposed ESMP will help to minimize or reduce the environment impacts to the acceptable levels.

iv. The proposed project will generate socio-economic benefits which would not be realized if the no development option is considered.

v. Positive implications of the project emanate from its potential to provide employment opportunities, increased government revenue etc. It's thus our opinion that NEMA does consider approving the proposed project subject to adherence of the proposed ESMP.

Recommendations

It is recommended that all suggested mitigation measures in the Environmental and Social Monitoring Plan be implemented during the entire project cycle. Additionally;

i. Construction works to commence only when the proponent obtains all relevant approvals

ii. The project should utilize local manpower during all phases and give equal opportunities to women to enhance project ownership and acceptance by the local community. No employment opportunities should be given to Children.

iii. Conduct statutory Environmental audits, Fire risk assessments and Occupational Safety and Health audits annually through licensed advisors for the facility during operations phase, as per the NEMA requirements to monitor the environmental compliance standards during the operation phases.

iv. Safety within the living and working environment is of great importance, it is recommended that all provisions of OSHA Act, 2007 be adhered to. An annual Occupational Safety and Health Audit, and Fire Safety Audit should be conducted.

v. Adhere to the formulated Environmental and Social Management Plan (EMP) to mitigate the predicted negative environmental impacts during installation, operation, and decommissioning phases.

vi. The project proponent to acquire all legal permits and licenses before commencing the project

REFERENCES

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7. Republic of Kenya (2007), Employment Act
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12. United Nations (1987) the Rio Declaration on Environment and Development
13. Reference to other CPRs of the area prepared by other consultants
14. Kenya Population and Housing Census, 2019
15. Project documentation provided by the proponent

ANNEXES

ANNEX 1: TOR approval letter

ANNEX 2: TOR

ANNEX 3: Copies of meeting attendace list

ANNEX 4: Copy of minutes

ANNEX 5: Copies of questionnaires

ANNEX 6: copy of minutes from previous meeting(2nd consultative meeting)

ANNEX 7: Ownership Documents

ANNEX 8: Copies of Practicing License of the firm of experts and Lead Experts

ANNEX 9: copy of design drawings

ANNEX 10: copy of the change of user