ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT STUDY REPORT

INTEGRATED ENVIRONMENTAL & SOCIAL IMPACT FOR THE PROPOSED VANTAGE POINT OFFICE TOWERS PROJECT AT THE TWO RIVERS PRECINCT, NAIROBI COUNTY.

Prepared by:

AWEMAC

SEPTEMBER 2025

INTEGRATED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED VANTAGE POINT OFFICE TOWERS PROJECT AT THE TWO RIVERS PRECINCT, NAIROBI COUNTY

PROPONENT

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ESIA CONSULTANT

AWEMAC

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CERTIFICATION

ESIA EXPERT

I, **Prof. Jacob K. Kibwage** submit this ***Integrated Environmental and Social Impact Assessment Study for the Proposed Vantage Point Office Towers Project at the Two Rivers Precinct, Nairobi County***. To the best of my knowledge, all information contained in this Report is an accurate and truthful representation of all findings relating to the proposed project as per project information provided by the proponent.

Signed in Nairobi on this ....*18th*.... *day of* ***September*** **2025**

Signature: .....

Africa Waste & Environment Management Centre (AWEMAC) P. O. Box 14365 00100 Nairobi

Designation: Lead Environmental Consultant *NEMA Firm Reg. 0527*

PROJECT PROPONENT

I, BRENDA MBATHI on behalf of **TRIFIC Twin Tower Company (SEZ) Limited** submit this **Integrated *Environmental and Social Impact Assessment Study for the proposed Vantage Point Office Towers Project at the Two Rivers Precinct, Nairobi County.*** To the best of my knowledge, all information contained in this Report is an accurate and truthful representation of all findings relating to the proposed project.

Signed in Nairobi on this .....18.....*day of* ....SEPT...., **2025**

TWO RIVERS INTERNATIONAL FINANCE AND INNOVATION CENTRE (SEZ) LIMITED
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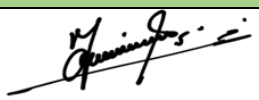
LIST OF PLANNING AND PARTICIPATING EXPERTS

A. TECHNICAL TEAM

NAME	QUALIFICATIONS	Signature
Prof Jacob K. Kibwage (Lead Expert, Reg. No. **0126**)	PhD in Environmental Studies	
Ms. Grace M. Momanyi (Lead Expert, **Reg. No. 7631)**	MA Project Planning and Management	
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B. SUPPORT TECHNICAL TEAM

NAME	QUALIFICATIONS
Ruby Ntabo	Bsc Civil and Structural Engineering
Evelyn Njeri Karuma	Bachelor of Environmental studies (Community Development)
Zacharia Onyango Odhiambo	BSc Environmental Science

LIST OF ACRONYMS

AWEMAC - Africa Waste and Environment Management Centre

BC - Building Code

BMS- Building Management System

CBD - Central Business District

COx - Carbon oxides

DOSH - Directorate of Occupational Safety and Health

DOSHS - Directorate of Occupational Safety and Health Services

EHS - Environmental, Health, and Safety

ELCA - Environment and Land Court Act

EMP - Environmental Management Plan

EMCA - Environmental Management and Coordination Act

EIA - Environmental and Social Impact Assessment

ESMP - Environmental and Social Management Plan

GDP - Gross Domestic Product

GHGs - Greenhouse Gases

GIS - Geographic Information System

GOK - Government of Kenya

GPS - Global Positioning System

HCVs - Heavy Commercial Vehicles

HASP - Health and Safety Plan

HVAC - Heating, Ventilation, and Air Conditioning

IESIA- Intergrated Environmental and Social Impact Assessment

ILO - International Labour Organization

ISWMS - Integrated Solid Waste Management System

KBS - Kenya Bureau of Standards

KEBS - Kenya Bureau of Standards

KEFRI - Kenya Forestry Research Institute

KEWI - Kenya Water Institute

KFS - Kenya Forest Service

KNBS - Kenya National Bureau of Statistics

KPLC - Kenya Power and Lighting Company

KRA - Kenya Revenue Authority

Kv- Kilovolt

KWTA - Kenya Water Towers Agency

KWS - Kenya Wildlife Service

L.N - Legal Notice

LOS- Level of Service

LR - Land Registry

LPG - Liquified Petroleum Gas

MEAs - Multilateral Environment Agreements

MEP- Mechanical, Electrical and Plumbing

MTP - Medium-Term Plan

MSDS - Material Safety Data Sheet

MSME - Micro, Small, and Medium Enterprise

N/A - Not Applicable

NCA - National Construction Authority

NCWSC - Nairobi City Water and Sewerage Company

NEC - National Environmental Council

NECC - National Environment Complaints Committee

NET - National Environment Tribunal

NETFUND - National Environment Trust Fund

NEMA - National Environment Management Authority

NGEC - National Gender Equality Commission

OHS - Occupational Health and Safety

OSHA - Occupational Safety and Health Act

PCA - Penal Code Act

PLUPA - Physical and Land Use Planning Act

PPES - Personal Protective Equipment

SERC - Standards and Enforcement Review Committee

SGR - Standard Gauge Railway

SHE - Safety, Health, and Environment

SOx - Sulfur oxides

TMP- Traffc Management Plan

TOR - Terms of Reference

UACA - Urban Areas and Cities Act

UNDESA - United Nations Department of Economic and Social Affairs

UNFCCC - United Nations Framework Convention on Climate Change

UNICEF - United Nations International Children's Emergency Fund

VAT - Value Added Tax

WA - Water Act

WHO - World Health Organization

WIBA - Work Injury Benefit Act

WRA - Water Resources Authority

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EXECUTIVE SUMMARY

Introduction

The proponent, **TRIFIC Twin Tower Company (SEZ) Limited** to develop plots 17, 18 and 19 forming part of LR 22/365 into a 22- Storey office tower (Vantage Point Towers) located within Two Rivers Mixed use development in Nairobi County. Vantage Point will be a signature landmark—a symbol of innovation, sophistication, and business prestige.

Two Rivers mixed use development is a Kenya Vision 2030 flagship project set on prime 102-acre master planned precinct within Diplomatic Blue Zone of Gigiri, Nairobi. The project integrates a retail, entertainment and lifestyle centre, Grade A offices, 3- and 5-star hotels, conferencing facilities, a residential offering and medical facilities. Given the constraint on well planned & developed space in Nairobi, Two Rivers offers an opportunity to develop a new urban node with reliable & sustainable infrastructure. An Environment and Social Impact Assessment for the mixed-use development was conducted in 2012 and an EIA license issued. Vantage Point Office Towers will be delivered in a core and shell configuration, offering maximum flexibility for interior customization to meet the unique needs of each tenant. Designed to global standards, the tower integrates state-of-the-art infrastructure with thoughtful, human-centered design creating an environment where innovation thrives.

The Kenya Government policy on such projects, programmes or activities requires that an Environmental Impact Assessment (EIA) be carried out at the planning stages of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, construction, operation, and decommissioning of the project. In accordance with the second schedule (Legal Notice No. 31 of 2019) of the Environmental Management and Coordination Act (EMCA) Cap 387, the project falls under the **'Urban Development'** class of "**High-Risk Projects**" Category "***i.e establishment of shopping centers, commercial centers and complexes exceeding ten thousand square Metres".*** The office tower will have a Gross floor area of 46,449M^2 with a Net Lettable floor area of approximately 39,373M^2.

The exercise was carried out in accordance with the National Environmental Management Authority (NEMA) and the Environmental (Impact Assessment and Audit) Regulations, 2003 and (Amendment) Regulations, 2019. The main purpose of this ESIA was to ensure adequate identification of potentially negative environmental and social impacts of the proposed project, propose workable mitigation measures and formulate an environmental monitoring and management plan articulating anticipated impacts.

The scope of the assessment covered impacts directly or indirectly associated with the construction, operation and decommissioning activities of the proposed project, supply of construction materials and other accessories. The consultant used both conventional and participatory approaches in identifying the potential environmental and social impacts and mitigation measures for the proposed project.

Project Description

The Proposed project site is located on plots 17, 18 & 19 forming part of Land Reference Number 22/365 on GPS Coordinates: -1.212518°, 36.798322°; -1.212203°, 36.797655°; -1.213255°, 36.797442° and -1.212730°,36.797185° at the Two Rivers Precinct, Nairobi. The land earmarked for the project is approximately 2.91 Acres.

The Proposed development will entail the construction of a 22 Storey office tower consisting of 3 Basement levels, Ground floor, Podium with a drop off point and office, 21 office floors and a Roof Top area. The office tower will have a Gross floor area of 46,449M^2 with a Net Lettable floor area of approximately 39,373M^2. The development will have support facilities such as a Car Parking of approximately 700 parking spaces with additional parking facilities available within Two Rivers Development, 10 lifts and sanitary facilities on each floor.

Key Policy, Legislative, and Administrative Framework

The project aligns with the Environmental Management and Co-ordination Act (EMCA) of 1999 and other relevant national and international environmental standards. The ESIA study adheres to legislative requirements set by the National Environmental Management Authority (NEMA), ensuring compliance with regulatory frameworks for sustainable development.

Public Participation and Consultation

During the Environmental Impact Assessment (EIA) for the 106 Acres Two Rivers Mixed Use Development (referred to Runda Close Burn Limited), public participation was a central component of the environmental planning process. The public consultation and participation were conducted through the following methods: household socio-economic surveys, public participation meetings and focus group discussions. The public participation exercise targeted Karura Community Chapel, residents from Rosslyn Estate, Runda and Ruaka township. Several key recommendations were reflected in the EIA which have informed the scope and focus of the Environmental and Social Impact Assessment (ESIA) for the proposed Vantage Point Office Tower within Two Rivers Development. Consultation and Public Participation was undertaken during the ESIA study.

The public participation process for the proposed Vantage Point Office Tower entailed conducting Public Participation Interviews and holding a Stakeholder consultation meeting. A total of Forty-Two (42) ESIA questionnaires were administered to the business enterprises surrounding the project site and other stakeholders.

A key stakeholders consultative meeting took place at the Holiday Inn Nairobi Two Rivers Mall on **28th August 2025 at 9.00am**. The meeting had a total of 37 participants with 17 being male and 20 females. Stakeholder comments and concerns have been incorporated in the report with key issues being highlighted in *Table 0-1.* The stakeholders raised no objections to the proposed office tower development, provided that all concerns raised during the meeting had been satisfactory addressed.

Key Positive Impacts

The proposed office tower development is anticipated to bring several positive impacts to the area, including economic growth, employment generation, increased government revenue, and optimal land use. During the construction phase, the project will stimulate the informal sector, provide a market for building materials, and contribute to the growth of the hospitality industry in the operational phase.

Key Negative Impacts

While recognizing the positive contributions, the ESIA study identifies potential negative impacts associated with the construction, operational and decommissioning phases. The potential

negative environmental impacts of the proposed project and possible mitigation measures are summarized below;

Table 0-1 Summary of Negative Environmental Impacts and the proposed Mitigation Measures

Potential Impact	Mitigation Measure
Construction Phase	
Clearance of Vegetation	• Clearly delineate areas for land preparation/other activities in the field to prevent loss of vegetation outside of designated works areas • Develop and implement a landscaping plan • Landscape and plant vegetation in all open areas after the completion of the project
Increased Noise and Vibrations Generation	▪ Ensure that working times are within the permissible times as per NEMA Regulations. ▪ Implement the use of vibration-dampening technologies to minimize noise levels. ▪ Install sound-absorptive materials or acoustic barriers during to reduce the reflection and projection of impulsive sounds from the surrounding zones. ▪ Plan the site clearance and construction activities in consultation with the neighbours so that activities with the greatest potential to generate noise and vibration are scheduled accordingly. ▪ Clear and informative signage should be installed to identify noise-sensitive zones within the development. ▪ Provide appropriate protective gear including ear corks and ear muffs to all construction workers working in noisy sections and enforce application at all times during the construction works. ▪ Sensitization of staff and contractors to foster a culture of shared responsibility in managing noise impacts. ▪ Ensure contractors monitor the noise levels in compliance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.
Increased Solid Waste Generation	▪ Use of an Integrated Solid Waste Management System (ISWMS); through a hierarchy of options including source reduction, recycling, composting and reuse; ▪ Comply to the National Waste Colour code i.e. Green for Organic Waste, Black for General Waste and Blue for Recyclable Waste ▪ Keep a record of data on the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, reused, recycled, recovered or disposed of (Waste tracking documentation) ▪ Engage the services of a NEMA Licensed waste handler to collect and transport waste to designated disposal sites. ▪ Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024.
Water Pollution	▪ Adhere to the demarcated riparian land and ensure no construction activities are undertaken at the riparian reserve.

	▪ Precautionary measures should be taken to prevent wastewater from being discharged into the environment, particularly during heavy rainfall periods when the risk of run-off is amplified. ▪ Ample facilities should be provided to the workers as per good practice standards requirements and the generated wastewater should be discharged into the right channels, to minimize the risk of discharge into the environment. ▪ Waste from construction activities should be disposed of in an environmentally sound manner to minimize the risk of discharge into the river. ▪ Construction vehicles, machinery and equipment should be parked or stored away from river riparian to ensure spillage of petroleum-based products do not run-off. ▪ Ensure construction activities adhere to the Environmental Management and Coordination (Water Quality Regulations), Regulation, 2024 and the (Water Resources) regulations 2025
Increased Generation of Waste Water	▪ Installation of adequate sanitary facilities separate for males and females that are well-maintained and have adequate hand washing facilities. ▪ Contain and sustainably manage potential pollutants of any kind to ensure the water table is not endangered; ▪ Promote recycling of wastewater and storm-water where feasible ▪ Comply with the provisions of the Environmental Management and Coordination (Water Quality) Regulations, 2024
Air Pollution	▪ Regular sprinkling of water on work areas to prevent fugitive dust violations. ▪ Use of dust nets/screens around the construction site to contain and arrest dust. ▪ All construction machinery should be regularly serviced to minimize the generation of hazardous gases; ▪ Sensitize construction drivers and machinery operators to switch off engines when not in use; ▪ Regularly monitor air quality levels to ensure compliance with Environmental Management and Coordination (Air Quality) Regulations, 2024.
Traffic Impact	▪ Adopt a Traffic Management plan and Delivery Management Plan to enhance traffic movement within the site ▪ Minimize haulage and transportation of construction material during peak hours; ▪ Construct acceleration and deceleration lanes to channel delivery trucks to the site without creating a backlog of traffic behind them as they navigate turns of entry; ▪ Proper signage and warnings should be placed at strategic locations; ▪ Construction activities should be done within the confines of the construction area. ▪ Any change in the normal programming of activities that will significantly disrupt normalcy along the abutting project roads should be timely communicated.
Occupational Health and Safety Risks	▪ Registration of the site prior to commencement of construction works; ▪ Provide appropriate PPE to workers; ▪ Training of workers in Occupational Safety and Health and Construction Safety; ▪ Obtain a Work Injury Benefit Act (WIBA) cover for employees.

	▪ Ensure compliance to the Occupational Safety and Health Act (OSHA), 2007. ▪ Hire a qualified safety officer to oversee compliance to OSHA, 2007.
Operational Phase	
Increased Solid Waste Generation	▪ Use of an Integrated Solid Waste Management System (i.e. through a hierarchy of options: Reduce, Reuse, Recycling and Dispose); ▪ Contract a NEMA registered solid waste handler to collect, transport and dispose of the waste in legal dumpsites; ▪ •Comply to the National Waste Colour code i.e. Green for Organic Waste, Black for General Waste and Blue for Recyclable Waste ▪ Undertake regular employee training programs to raise awareness about waste reduction and recycling practices; ▪ • Keep a record of data on the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, reused, recycled, or disposed of (Waste tracking documentation). ▪ Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024 and Sustainable Waste Management Act, 2022.
Increased Wastewater Generation	▪ Channel all wastewater to Two rivers Water and Sanitation Plant Wastewater Treatment Plant. ▪ Regular inspection and maintenance of internal sewer systems; ▪ Adopt more efficient use of water resources in order to reduce overall amount of waste water generated by the facility. ▪ Comply with the provisions of Environmental Management and Coordination (Water Quality) regulations, 20024
Water Pollution	▪ Adhere to the demarcated riparian land and ensure no activities are undertaken at the riparian reserve. ▪ Precautionary measures should be taken to prevent wastewater from being discharged into the environment, particularly during heavy rainfall periods when the risk of run-off is amplified. ▪ Liquid waste from the operational activities should be disposed of in an environmentally sound manner to minimize the risk of discharge into the river. ▪ Ensure operational activities adhere to the Environmental Management and Coordination (Water Quality Regulations), Regulation, 2024 and the (Water Resources) regulations 2025
Noise Pollution	▪ Using equipment with low noise ratings or noise reduction technologies such as silencers for the generators. ▪ Provision of PPES such as ear plugs for employees working in noisy conditions or with noisy equipment. ▪ Erecting signs and notifying other users of noisy activities. ▪ Ensure regular maintenance for equipment e.g. HVAC, Generator etc. ▪ Ensure compliance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.

Increased Pressure on the Existing Resources	▪ Explore alternative means which are environmentally sound like employing Green Energy Technologies when and where applicable; ▪ Liaise closely with other development partners and Government/Council Departments, to upgrade the existing shared facilities including roads, water distribution systems etc.
Traffic Congestion	▪ Ensure fast screening and access of all vehicles entering the premises to prevent traffic snarl-up at the entry point. ▪ Ensure that appropriate road signage is positioned strategically at the entry point alerting oncoming drivers of route diversion into the office tower. ▪ Ensure that all drivers making use of the parking adhere to all traffic rules to minimize incidences of accidents.
Decommissioning Phase	
Generation of Demolition Waste	▪ Conduct a thorough environmental audit of to ensure proper disposal of demolition waste; ▪ Engage in community outreach programmes to address post-decommissioning impacts on local communities; ▪ Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024
Occupational Health and Safety Risks	▪ Establish a Health and Safety Plan (HASP) that covers the scope of works carried out at this phase. ▪ Appoint/maintain a trained health and safety team for the duration of the works. ▪ Provide workers with adequate and appropriate PPE. ▪ Ensure all other applicable safety standards according to the provisions of OSHA 2007, are adhered to.
Noise and Vibration	▪ Workers should be provided with appropriate Personal Protective Equipment (PPE); ▪ Consult neighbors and schedule demolition activities during the day and at off-peak hours as agreed; ▪ Ensure contractors compliance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.
Air Pollution	▪ Erection of dust nets around the site; ▪ Sprinkling dusty areas including access roads with water to suppress dust levels; ▪ Cover trucks used in transportation of soil and other solid materials from the site to prevent the spreading of dust into the surrounding area; ▪ Regularly monitor air quality levels to ensure compliance with Environmental Management and Coordination Act (Air Quality) Regulations, 2024

Conclusion

In conclusion, the ESIA study concludes that the proposed office tower is a worthwhile investment that, if executed with strict adherence to the outlined mitigation measures, will contribute positively to the local economy. The proponent of the proposed project shall be committed to putting in place several measures to mitigate the negative environmental, safety, health and social impacts associated with the life cycle of the project. The proponent's commitment to environmental compliance and performance standards, as well as the implementation of the ESMP, ensures responsible and sustainable development. It is recommended that the project proceed, contingent on adherence to the conditions of approval by NEMA and ongoing commitment to the outlined mitigation strategies.

1 INTRODUCTION

1.1 Background Information

The proponent, **TRIFIC Twin Tower Company (SEZ) Limited** plans to develop plots 17, 18 and 19 forming part of LR 22/365 into a 22- Storey office tower (Vantage Point Towers) located within Two Rivers Mixed use development in Nairobi County.

Two Rivers mixed use development is a Kenya Vision 2030 flagship project set on prime 102-acre master planned precinct (Refer to Annex 5) within Diplomatic Blue Zone of Gigiri, Nairobi. The project integrates a retail, entertainment and lifestyle centre, Grade A offices, 3- and 5-star hotels, conferencing facilities, a residential offering and medical facilities. Given the constraint on well planned & developed space in Nairobi, Two Rivers offers an opportunity to develop a new urban node with reliable & sustainable infrastructure. An Environment and Social Impact Assessment for the mixed-use development was conducted in 2012 and an EIA license issued.

TRIFIC is the only services-focused Special Economic Zone (SEZ) in Kenya (*Developer License - Annex 2*), offering new and exciting prospects for global, regional, and Kenyan service-oriented business enterprises seeking a competitive and advantageous base to access international markets. Spanning over 64 acres within Nairobi's prestigious diplomatic blue zone and with a further robust development capacity of 1.2 million square meters, TRIFIC provides global businesses and talent with a world-class environment to thrive, offering a world-class live-work-play ecosystem with grade A offices, residential, hospitality, and social amenities.

Vantage Point Office Towers will redefine the Two Rivers International Finance & Innovation Centre skyline with a bold statement in modern architecture. It's sleek, linear façade—accentuated by a radiant glossy finish—amplifies the towers' commanding height and refined minimalist design. Meticulously envisioned to harmonize with the dynamic Two Rivers ecosystem, the building will effortlessly blend into its vibrant urban context while making a powerful architectural impression. More than just an office address, Vantage Point will be a signature landmark—a symbol of innovation, sophistication, and business prestige.

Vantage Point Office Towers will be delivered in a core and shell configuration, offering maximum flexibility for interior customization to meet the unique needs of each tenant. Designed to global standards, the tower integrates state-of-the-art infrastructure with thoughtful, human-centered design creating an environment where innovation thrives.

The Proposed development will entail the construction of a 22 Storey office tower consisting of 3 Basement levels, Ground floor, Podium with a drop off point and office, 21 office floors and a Roof Top area. The office tower will have a Gross floor area of 46,449M2 with a Net Lettable floor area of approximately 39,373M2. The development will have support facilities such as a Car Parking of approximately 700 parking spaces with additional parking facilities available within Two Rivers Development, 10 lifts and sanitary facilities on each floor.

1.2 Rationale for the Environmental and Social Impact Assessment

The Kenya government policy on such projects, programmes or activities requires that an Environmental Impact Assessment be carried out at the planning stages of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, construction, operation and decommissioning of the project.

In accordance with the second schedule (Legal Notice No. 31 of 2019) of the Environmental Management and Coordination Act (EMCA) Cap 387, the project falls under the **'Urban Development'** class of "**High-Risk Projects**" Category i.**e. *establishment of shopping centers, commercial centers and complexes exceeding ten thousand square Metres*"**. The proposed office tower will have a Gross floor area of 46,449M^2 with a Net Lettable floor area of approximately 39,373M^2.

Part VI, sections 58 and 59 of EMCA, Cap 387, provides that the proponent shall: before any financing, commencing, proceeding with, carrying out, executing or conducting or causing to be financed, commenced, proceeded with, carried out, executed or conducted by another person any undertaking specified in the second schedule to this Act, submit a study report to the National Environment Management Authority, (NEMA), in the prescribed form, giving the prescribed information and which shall be accompanied by the prescribed fee. Further in section 58 (5), the Act states that the Environmental Impact Assessment (EIA) studies and reports required under the Act shall be conducted or prepared respectively by individual experts or a firm of experts authorized on that behalf by the Authority.

1.3 Scope, Approach, and Criteria of the Integrated Environmental Impact Assessment

The "Integrated Environmental Assessment," which is a more holistic approach to the evaluation of the proposed project, was used to undertake a detailed and integrated study of the project. It entailed the following:

- ***Environmental Impact Assessment***: This involved an examination, analysis, and assessment of planned activities with a view of ensuring environmentally sound and sustainable development. It is the evaluation of a project's potential environmental risks and impacts in its area of influence; examination of project alternatives; identification of ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation.
- ***Social Impact Assessment***: This entailed analyzing, monitoring, and managing the intended and unintended social consequences, both positive and negative, of the projects and any social change processes invoked by the proposed project.

The scope of the assessment covered impacts directly or indirectly associated with the construction, operation and decommissioning activities of the proposed project, supply of construction materials and other accessories. The consultant used both conventional and participatory approaches in identifying the potential environmental and social impacts and mitigation measures for the proposed project. In pursuing the exercise in accordance with the Environmental (Impact Assessment and Audit) Regulations, 2003 (rev 2012) and (subsequent amendments 2016 & 2019), the consultant:

a) Identified the anticipated environmental, social, health and safety impacts of the project and the scale of the impacts;

b) Identified and analyzed alternatives to the proposed project;

c) Proposed mitigation measures to be taken into consideration during and after the implementation of the project; and

d) Developed an environmental and social management plan with mechanisms for monitoring and evaluating the compliance and environmental performance, which shall include the cost of mitigation measures and the time frame of implementing the measures.

The objective of this work was to deliver an Integrated Environmental and Social Impact Assessment study report for the purposes of applying for an EIA License.

1.4 Objectives

The principal objective is to highlight the possible positive and negative environmental and social impacts expected during the establishment and operation of the proposed project, with the aim of proposing possible mitigation measures. This is in line with ensuring that such a development does not negatively impact the environment in terms of the social, health, economic and physical (soil, water, plant and animals) state of the area. The study identified the possible environmental impacts during the implementation and operational phases of the project. The exercise was carried out in accordance with: the National Environmental Management Authority (NEMA); and the Environmental (Impact Assessment and Audit) Regulations, 2003 and (Amendment) Regulations, 2019

1.5 Purpose and Terms of Reference

The purpose and terms of reference developed for this project were to assess the impacts that may arise during the construction, operational and decommissioning phases of the proposed project. The consultants, on behalf of the proponent, conducted the study by committing themselves to the integrated study report standard terms of reference which requires that the report specify: -

a) The nature of the project;
b) The location of the project including;
    i. proof of land ownership,
    ii. the Global Positioning System coordinates, and
    iii. the physical area that may be affected by the project activities;
c) The activities that shall be undertaken during the project construction, operation and decommissioning phases;
d) A description of the relevant International, National and County environmental legislative and regulatory frameworks on environmental and socioeconomic matters;
e) Preliminary design of the project;
f) The materials to be used, products and by-products, including waste to be generated by the project and the methods of their disposal;
g) The potential environmental impacts of the project and the mitigation measures to be taken during and after implementation of the project;
h) An analysis of available alternatives including an alternative
    i. project site,
    ii. design,
    iii. technologies and processes; and
    iv. the reasons for preserving the proposed site design, technologies and processes;
i) An action plan for the prevention and management of possible accidents during the project cycle;

j) A health and safety plan for the workers and neighboring communities;
k) The economic and sociocultural impacts on the local community and the nation in general;
l) Strategic communication plan to ensure inclusive participation during the study and provide a summary of issues discussed at the public participation forum;
m) An environmental management plan;
n) Integration of climate change vulnerability assessment, relevant adaptation and mitigation actions;
o) The Project cost;
p) Any other information the Authority may require.

2 ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT METHODOLOGY

2.1 Introduction

Given the scale of the proposed project, a full Environmental and Social Impact Assessment (ESIA) study was undertaken to ensure the comprehensiveness and completeness of the assessment. The study was conducted as guided by the Environmental Management and Coordination Act Cap 387 and the Environmental Impact Assessment/ Audit Regulations of 2003 and Amendment in 2019.

The general steps that were followed during the assessment included:

- Environmental screening, in which the project was identified as a high-risk project requiring an Environmental Impact Assessment study under the Amendment of the Second Schedule of EMCA 1999 *and the* Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2003, and Amendment in 2019;
- Environmental scoping, which provided the key environmental issues, desktop studies, biodiversity studies, and interviews;
- Physical inspection of the proposed project site and surrounding areas;
- Observations, Photography, and application of Geographic Information System (GIS);
- Noise and Air Quality Measurements;
- ESIA Public Participation and Stakeholder Consultation through a stakeholders' consultation meeting and Administration of Questionnaires;
- Desktop Studies;
- Data Analysis; and
- Report Preparation

The environmental assessment aimed at examining, analyzing, and assessing the proposed project activities to ensure environmentally sound and sustainable development systems.

2.2 Environmental Screening

A screening exercise was conducted in the month of May 2024 to determine whether an Environmental and Social Impact Assessment (ESIA) would be required and what level of assessment was necessary. This was done in line with the requirements of the Environmental Management and Coordination Act (EMCA) Cap 387 and the Environmental (Impact Assessment and Audit) Regulations, 2003 and the (Amendment) Regulations, 2019 (L.N No. 32 of 2019).

The screening exercise identified that the proposed project is listed in the amended Second Schedule of the EMCA 1999 (L.N No. 31 of 2019), and the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 as a project for which an Integrated Environmental and Social Impact Assessment study report is necessary.

2.3 Environmental Scoping

The scoping exercise was carried out in the month of June 2025, where key issues identified during screening were further investigated through desktop analysis, field data collection and key stakeholders' engagement to ascertain whether additional information was needed to evaluate baseline conditions and potential impacts within the proposed project area. The desktop evaluation involved reviewing applicable environmental and social data collected from external sources with published information. In addition to desktop review, primary data was collected

through field studies conducted by the consultant. The key objectives for the Scoping phase were: -

- To identify stakeholders and inform them of the proposed project and the ESIA process.
- To provide stakeholders with the opportunity to identify any issues and concerns associated with the proposed project; and equally propose potential interventions to the issues raised for consideration in the ESIA process.
- To identify environmental and social issues that may require further investigation at the study level.
- To determine the final Terms of Reference (ToR) for the specialist's baseline and impact assessment studies in response to initial stakeholder input.

The scoping exercise established the need for an ESIA study due to the nature of the project; its classification by the regulating authorities in Kenya; and the complexity of environmental issues that required further assessment. The outputs of the scoping exercise were the project's Terms of Reference (ToR).

2.4 Data Collection Procedures

The Environmental Management and Co-ordination Act No.8 of 1999, (CAP 387) stipulates that an integrated ESIA study shall be conducted in accordance with the general ESIA guidelines and administrative procedures issued by the National Environment Management Authority ("NEMA" or "the Authority"). The Authority therefore oversees all aspects of Environmental and Social Impact Assessments (ESIAs).

It is worth noting that there are multiple methods to meet the necessary requirements for an ESIA hence our objective was to select an array of methods that could collectively meet the assessment's needs. It is therefore for this reason that AWEMAC undertook environmental screening and scoping to identify the key issues and data requirements.

The full ESIA Study was carried out based on the NEMA-approved ESIA Terms of Reference and in compliance with the government of Kenya's Environment Management and Coordination Act Cap 387 and the Environmental (Impact Assessment and Audit) Regulations 2003 and its amendment of 2019.

The process of conducting the ESIA Study involved the following methods:

- Administration of ESIA Questionnaires to the business entities surrounding the project site as well as relevant key stakeholders.
- ESIA Scoping Checklists.
- Field Visits, Observations,
- Photography
- Ambient Noise Measurements.
- Ambient Air Quality Measurements
- GIS/ GPS Technologies.
- Stakeholder Consultation and Public Participation Meetings.

2.5 Description of the Proposed Project

To provide a comprehensive description of the proposed project, the consultant relied mainly on the review of available literature in regard to the project. Additionally, the consultant reviewed the proposed project drawings as provided by the proponent.

The description will also be based on the different phases of the project and associated activities as outlined below:

i. Planning Phase;
   - Design
   - Site Layout
   - Materials

ii. Construction Phase;
iii. Operation Phase; and
iv. Decommissioning Phase

2.6 Description of the Environmental and Socioeconomic Condition of the Project Area

The consultant sought to provide a clear description of the proposed project including its area of influence and baseline information on the existing environmental and socioeconomic situation. The Consultant undertook baseline surveys aiming to provide a measure of the existing environment and the socioeconomic situation against which future changes due to the project can be monitored. This entailed conducting detailed environmental assessment and carrying out preliminary social surveys. Further, the following studies were conducted to supplement existing baseline information for the project site: Baseline Ambient Air Quality Assessment, Noise Impact Assessment and Traffic Impact Assessment.

The consultant collected, evaluated, and presented baseline data and information on the relevant environmental characteristics of the present environment, determined from actual site visits, and site-specific and regional baseline studies in physical, biological, and socioeconomic domains. The collection of baseline data was designed to satisfy information requirements and focused on relevant aspects that were likely to be affected by the proposed project.

2.6.1 Desktop Study

The following key documents were reviewed: -

- Project Drawings
- Project Geo-technical Investigation Report
- Applicable Multilateral Environment Agreements (MEAs).
- Applicable legislation and policies in Kenya.
- Nairobi County Government laws
- Existing documentation on other studies undertaken within the project area.

2.6.2 Project Site Assessment

Field visits were meant for physical inspections of the site characteristics and the environmental status of the surrounding areas to determine the anticipated impacts. Transect walks within the project area were undertaken to collect baseline information for the project area. Observations were made regarding the following:

- Flora;

- Fauna;
- Business enterprises surrounding the project site;
- Characteristics of existing structures surrounding the project site;
- Existing social infrastructure;

2.7 Policy, Legislative, Regulatory and Administrative Framework

The consultant identified the pertinent policies, regulations and standards - both local and international- governing the environmental quality, health and safety, protection of sensitive areas such as the river Gichi, land use control at the national and local levels and ecological and socioeconomic issues. The examination of the legislation included the relevant international conventions to which the Kenyan government is a signatory. The consultant assessed the relevant government agencies involved in environmental and social management issues, to ensure that the Environmental and Social Management Plan (ESMP) would be effectively implemented. The consultant described how the identified legislation, regulations and policies constrain or support the project designs and implementation.

2.8 Stakeholder Engagement and Public Participation

The consultant carried out stakeholder analysis and prepared a participation plan for the inclusion and consultation with all identified key stakeholders throughout the ESIA process.

Questionnaires were administered within the project area to ensure adequate public participation and stakeholder involvement in the ESIA process. The information gathered was essential in drafting the baseline information and determining potential project impacts and mitigation measures. Additionally, a key stakeholder consultative meeting was convened. This was done to incorporate the concerns and views of all stakeholders and individuals in the project area. The venue selection was based on the ease of site accessibility.

2.9 Environmental and Social Impact Analysis

The consultant predicted and assessed the environmental and social benefits and negative impacts of the project as well as any environmental enhancement that may occur. The assessment distinguished between positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts as well as impacts that are unavoidable or irreversible.

2.9.1 Impacts Prediction and Analysis

When predicting and analyzing the impacts, the consultant considered the ***Intensity*** and ***severity*** of the Impacts. Impact prediction was achieved through the following methods: **Checklists**; **Environmental modelling**; **GIS analysis** and **Professional judgment**.

2.9.1.1 Intensity of Impacts

Intensity covers all dimensions of the predicted impact on the natural and social environments, namely:

- the nature of the change (which resource or which receiver is allocated and how).
- the spatial extent of the affected area or the part of the population or affected community.
- its temporal extent (duration, frequency, reversibility); and if so,
- the probability of an impact following an accidental or unexpected phenomenon.

Table 2-1: Predicting the intensity of impacts.

Intensity	Impacts
Type	**Direct** - resulting from direct interaction between the project and resource/receiver.
	Indirect -resultant direct interaction between the project and its environment, due to interactions occurring thereafter.
	Armature - impacts from other follow-up activities to the project.
Scope	**Local** - limited impact in the project area and its surroundings.
	Regional - impacts felt beyond the local areas, even in the extended region.
	International - impacts felt at the international level, thus affecting another country.
Duration	**Temporary** - Short-term impacts, on the order of hours to weeks.
	Short-term - impacts predicted to last only during drilling and construction operations (up to about 2 years).
	Medium-term - impacts predicted to last between two years and the end of the project (20 years)
	Long-term - anticipated impacts of a longer duration than the project but which will cease in time.
	Permanent - impacts causing a permanent change on the receiver or the affected resource (s) and extending well beyond the lifetime of the project.
Frequency	**Recurrent**- impacts occurring frequently or continuously
	intermittent- occasional impacts or appearing only in specific circumstances.
	Unlikely- unlikely event that may during the project.
Probability	**Possible** - event likely to occur at some point during the project.
	Likely- the phenomenon will occur during the project (e.g. it is inevitable)

2.9.1.2 Severity of Impacts

The consultant assessed the severity of impacts to provide information on the importance of different impacts of the project. It is important to note that there is no statutory definition of the severity of an impact. Thus, as part of the ESIA, the evaluation of the severity of impacts is based on the Consultant's professional judgments using objective criteria, when available, legal norms, national government policies, regionally recognized good industry practices and opinions of stakeholders.

An impact is **negligible** when a resource/receptor (including people) is affected in any way by a particular activity or when the intended effect is judged "Imperceptible" or indistinguishable, from a natural background.

An impact is **minor** when a resource / receptor is affected, but the intensity of the impact is small enough to remain within the limits of applicable standards (i.e., regulations and guidelines applicable) or in the absence of standards when sensitivity/vulnerability/importance of the resource / receptor is low.

An impact is **moderate** when its intensity remains within the standards but is between a threshold below which the impact is minor and a level likely to be on the verge of a legal offense. For moderate impacts, it should reduce impacts to a level "as low as reasonably practicable" (ALARP). This does not necessarily mean that the so-called impact "moderates" must be reduced to minor impacts, but they are managed efficiently and effectively.

A **major** impact is when the acceptable or allowable standards limits may be exceeded, or high intensity impacts can allocate resources/receptors quality / importance /high sensitivity. One of ESIA's goals is to get to a configuration where the project is not associated with any major residual impact, or any impact that would remain in the long term or a significant extent. However, in some respects, there may be major residual impacts, once all mitigation options (a level as low as reasonably achievable is then applied) have been exhausted. It can be for example the visual impact of an installation. Regulators and stakeholders must then balance these negative factors with respect to the positive aspects such as employment.

The consultant assessed the magnitude and significance of impacts based on the following factors:

- Location or extent: The area/volume covered.
- Timing: Whether immediate or delayed
- Duration: Short-term, long-term, intermittent or continuous
- Reversibility or irreversibility
- Likelihood: Probability of the impact taking place
- Significance: Whether it is local, regional, or global

The consultant used the scale in the table below in the analysis of impacts and quantified them in a scale of 0 – 5.

Table 2-2: Levels of Scale to be used in the Analysis of Impacts

Value	Description	Scale Description
0	No impact	This means that to the best knowledge of the expert, the activity/action will not have any known impact on the environment. Such an impact will not in any way affect the normal functioning of either the human or the natural systems and does not therefore warrant any mitigation.
1	Minimal impact	Any activity with little impact on the environment calls for preventive measures, which are usually inexpensive and manageable. Such activities have minimum impacts on either natural or human environment or both.
2	Moderate impact	A moderate impact will have a localized effect on the environment. If the effect is negative and cumulative, action in form of mitigation measures needs to be put in place to ensure that it doesn't become permanent and /or irreversible.
3	High impact	An impact is high if it affects a relatively large area (spatial), several biological resources (severity) and/or the effect is felt for a relatively long period (temporal) e.g. more than one year. In case the effect is negative, such an impact needs to be given timely consideration and proper mitigation measures put in place to prevent further direct, indirect, or cumulative adverse effects.
4	Very high impacts	Such an activity rates highly in all aspects used in the scale i.e., temporal, spatial and severity. If negative, it is expected to affect a huge population of plants and animals, biodiversity in general and a large area of the geophysical environment, usually having trans-boundary consequences. Urgent and specialized mitigation

Value	Description	Scale Description
		measures are needed. It is the experts' opinion that any project with very high negative impacts MUST be suspended until sufficient effective mitigation measures are put in place.
5	Not known	There are activities for which impacts are not yet known e.g. some chemicals are suspected to produce carcinogenic effects, but this has not yet been confirmed.

2.9.2 Occupational Health and Safety Concerns

The ESIA Consultant analyzed and described the potential occupational health and safety concerns that are associated with the proposed project construction and operation activities. The Consultant further made recommendations on both preventive and corrective or remedial measures to be implemented under the environmental management plan.

2.9.3 Analysis of Alternatives

The Consultant systematically compared feasible alternatives to the proposed project site, technology, design, and operation including the "without project" situation in terms of their potential environmental and social impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. After the analysis, the Consultant recommended the preferred alternative and stated why it was chosen.

2.9.4 Climate Change Risk and Vulnerability Assessment

The ESIA consultant conducted a Climate Change Risk and Vulnerability Assessment (CRVA) to inform appropriate adaptation and mitigation measures for climate-proofing the proposed project.

The purpose of this assessment was to:

- Calculation of the potential Green House Gas Emissions estimated to be generated by the proposed project.
- Identify potential climate change-related risks and vulnerabilities that could impact the project.
- Develop evidence-based adaptation and mitigation strategies.
- Integrate climate resilience into the project design, planning, and implementation stages to "climate-proof" the project.
- Propose measures to offset Green House Gas Emissions

An analysis of all stages of the project life-cycle—design, construction, operation, and decommissioning were conducted: The analysis covered:

- Physical infrastructure
- Biological environment i.e., ecosystems and biodiversity
- Socio-economic environment i.e., Communities and socio-economic systems
- Policy, legislative, regulatory and Institutional framework

2.9.5 Preparation of an Environmental and Social Management Plan

During the ESMP preparation, the consultant presented the mitigation measures that will need to be implemented by the proponent/contractor to prevent or reduce significant negative impacts to acceptable levels. The ESMP has highlighted recommendations for actions and procedures for their implementation in the short and long term, and the cost of their implementation.

2.9.6 Preparation of an Environmental and Social Monitoring Plan

The consultant has developed a monitoring plan with a characteristic description of all project impacts that can be quantitatively or qualitatively monitored including technical details, of monitoring measures for the ESMP, including the parameters to be measured, methods to be used, sampling locations and frequency of measurements.

3 PROJECT DESCRIPTION

3.1 Overview of Two Rivers Development Masterplan

Two Rivers mixed use development is a Kenya Vision 2030 flagship project set on prime 102-acre master planned precinct (*Refer to Annex 5*) within the Diplomatic Blue Zone of Gigiri, Nairobi. The project integrates a retail, entertainment and lifestyle centre, Grade A offices, 3- and 5-star hotels, conferencing facilities, a residential offering and medical facilities. Given the constraint on well planned & developed space in Nairobi, Two Rivers offers an opportunity to develop a new urban node with reliable & sustainable infrastructure. An Environment and Social Impact Assessment (ESIA) for the mixed-use development was conducted in 2012 and an EIA license was issued.

3.2 Site Location

The Proposed project site is located on plots 17, 18 & 19 forming part of Land Reference Number 22/365 on GPS Coordinates: -1.212518°, 36.798322°; -1.212203°, 36.797655°; -1.213255°, 36.797442° and -1.212730°,36.797185° at the Two Rivers Precinct, Nairobi. The proposed project site will be part of the 2.91 Acres allocated for development.

The project site is surrounded by Victoria Towers to the North, Riverbank Apartments to the North Eastern, Loft residency & River Gichii to the East, an events ground to the south and Two Rivers Mall to the North Western side of the site.

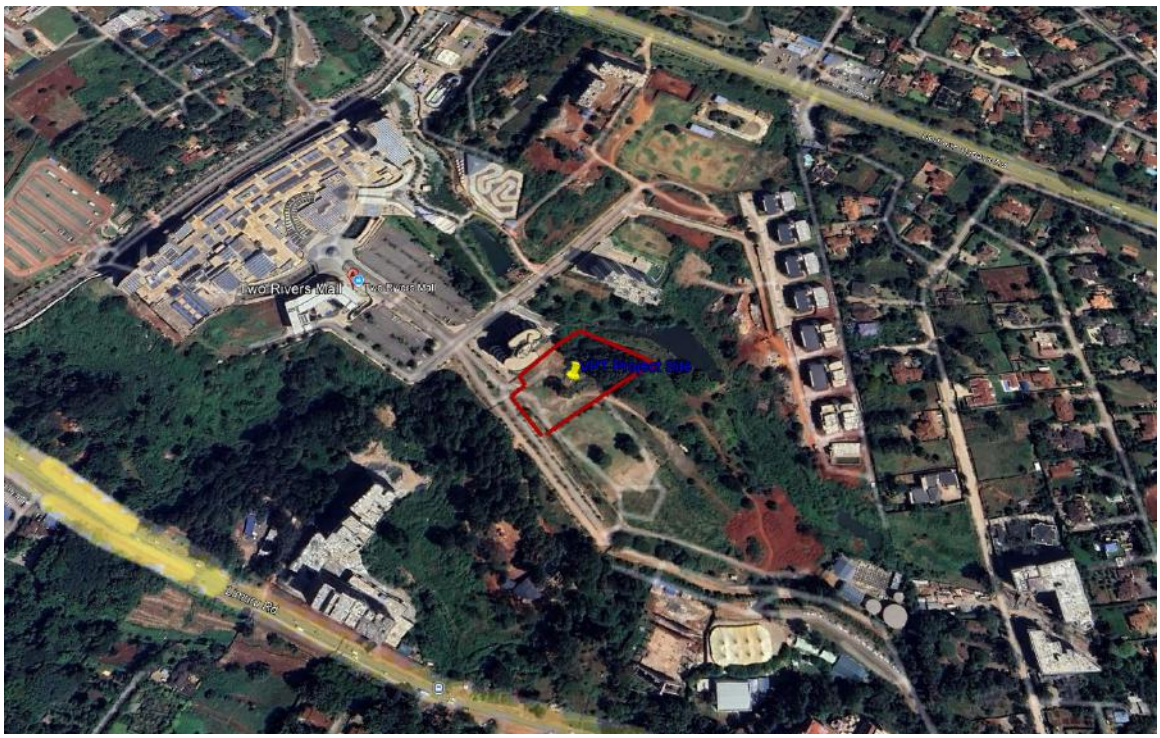


Figure 3-1 Google Earth Image of the proposed Project site

3.3 Project Components

The Proponent - Two Rivers International Finance & Innovation Centre (TRIIFIC) Twin Tower Company SEZ - a Kenyan registered company *(Annex 3 KRA PIN and Annex 1 – Certificate of Incorporation)* intends to develop the land into a 22-storey office tower with other support facilities.

The Proposed development will entail the construction of a 22 Storey office tower consisting of 3 Basement levels, Ground floor, Podium with a drop off point and office, 21 office floors and a Roof Top area. The office tower will have a Gross floor area of 46,449M^2 with a Net Lettable floor area of approximately 39,373M^2. The development will have support facilities such as a Car Parking of approximately 700 parking spaces with additional parking facilities available within Two Rivers Development, 10 lifts and sanitary facilities on each floor.

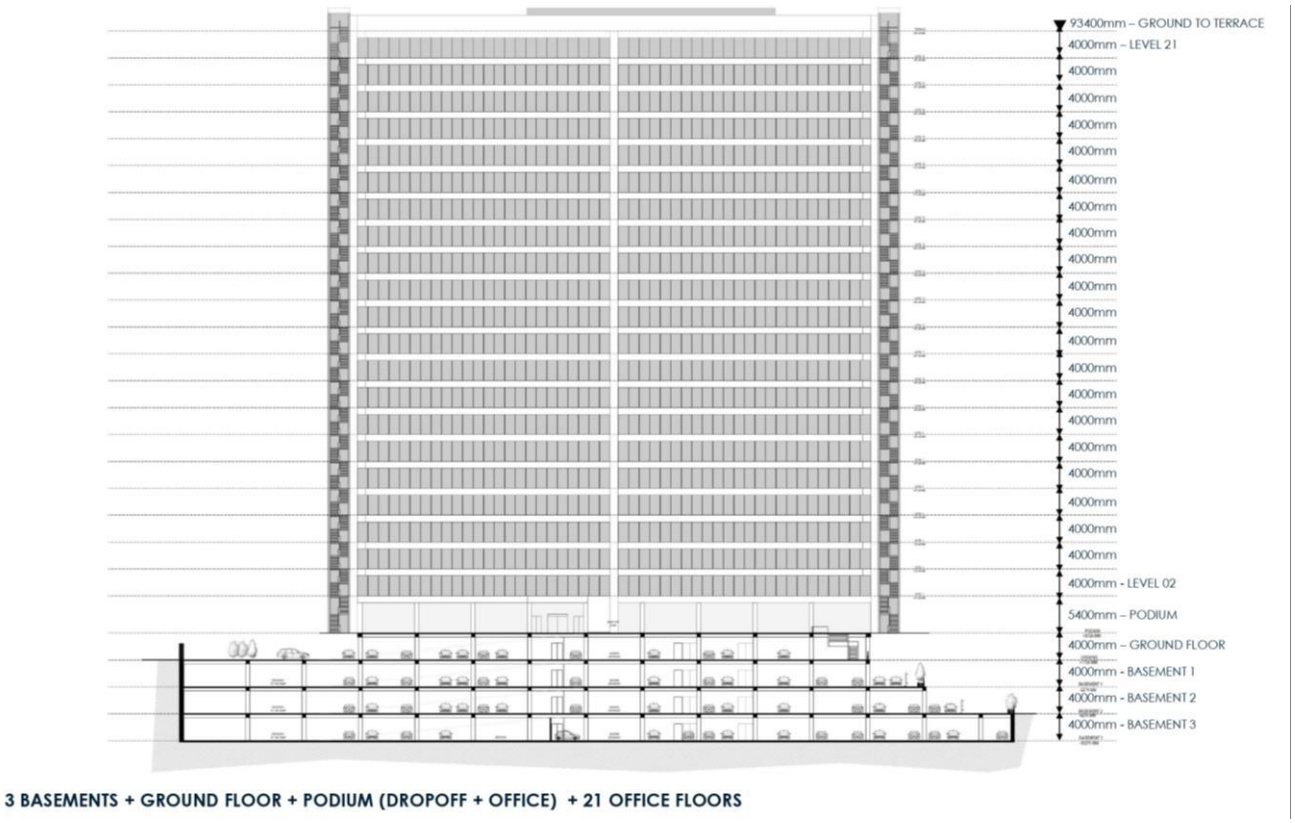


Figure 3-2 Layout for the Proposed Project

Two Rivers Trific Tower		
Tower A	Gross Floor Area (m^2)	Current Nett Lettable/Floor (m^2)
Podium	2000	1279
1st	2116	1814
2nd	2116	1814
3rd	2116	1814
4th	2116	1814
5th	2116	1814
6th	2116	1814
7th	2116	1814
8th	2116	1814
9th	2116	1814
10th	2116	1814
11th	2116	1814
12th	2116	1814
13th	2116	1814
14th	2116	1814
15th	2116	1814
16th	2116	1814
17th	2116	1814
18th	2116	1814
19th	2116	1814
20th	2116	1814
21st	2116	1814
Roof (MEP)	0	0
Total Tower A	**46,449**	**39,373**

Area within 6m Setback (m2)	7,862
Area to Plot Boundary(m2)	9,571

Figure 3-3 Summary of Gross floor area on each floor

The proposed project drawings detailing the facilities within the proposed office tower are attached as *Annex 6.*

3.4 Project Design

Vantage Point Office Towers will redefine the Two Rivers International Finance & Innovation Centre skyline with a bold statement in modern architecture. It's sleek, linear façade—accentuated by a radiant glossy finish—amplifies the towers' commanding height and refined minimalist design. Meticulously envisioned to harmonize with the dynamic Two Rivers ecosystem, the building will effortlessly blend into its vibrant urban context while making a powerful architectural impression. More than just an office address, Vantage Point will be a signature landmark—a symbol of innovation, sophistication, and business prestige.

Vantage Point Office Towers will be delivered in a core and shell configuration, offering maximum flexibility for interior customization to meet the unique needs of each tenant. Designed to global standards, the tower integrates state-of-the-art infrastructure with thoughtful, human-centered design creating an environment where innovation thrives.

This project shall be designed and planed considering the following:

- State of the art installations
- Modern engineering concepts
- Availability of replacement / maintenance parts locally
- Resilience of all design parameters
- Modularity / Scalability
- Sustainability

The design shall be based on the intended purpose of the development within the allocated spaced to ensure functionality.

3.5 Project Site accessibility

The proposed project is to be developed within the Two Rivers Development, accessed from both the Northern Bypass and Limuru Road. Figure 3-4 below shows the main site Access Road from Limuru road to the project site.

Figure 3-4 Proposed Project Site Plan

3.6 Project Activities

3.6.1 Preconstruction phase

The Key Preconstruction Works will include obtaining the necessary approvals required before commencement of construction works and sourcing a contractor for the construction works

3.6.2 Construction phase

The Key Construction Works will include:

3.6.2.1 Site Preparation Works

This will involve clearing of vegetation on site. Proper site clearing will be conducted and arrangements made to properly and safely of dispose excavated soil oof site. An excavation plan will be developed, and appropriate shoring and bracing will be used. Excavated materials will be sorted and reused, recycled or disposed as per the excavation plan. Site clearance and construction will involve the use of heavy earth-moving machinery such as excavators and

bulldozers. The proponent will utilize human labour where feasibly possible to create employment opportunities for the local communities and youth around the area.

3.6.2.2 Excavation and Earthworks;

Excavation shall be done using backhoes for removing top soil and jackhammers for areas with hard rock. The excavated soil will be transported off-site, while any excavated rock material will be reused for back-filling on-site and off-site in the event of an excess, to ensure efficient excavation while minimizing environmental impact and adhering to safety regulations.

3.6.2.3 Storm-water Drainage System

The client will apply soil erosion control measures to reduce run-off velocity and increase the infiltration of storm-water into the soil. A storm-water drainage infrastructure shall be constructed for the proposed office tower. In select areas, a dedicated manhole and storm-water drainage connections will be provided to serve the facility.

3.6.2.4 Storage of Materials

Temporary stores for building materials will be erected on-site during the construction phase. Materials will be stored as per a material storage plan at the designated storage areas for materials that will be accessible and properly located to minimize transportation. Materials will be categorized and labeled appropriately, weather protected and stored securely. Any hazardous materials will be stored as per safety regulations and waste management shall be employed to avoid wastage through reuse, recycling and appropriate disposal.

Bulky materials such as stones, ballast, sand and steel will be carefully piled at designated areas on site. To avoid piling large quantities of materials on site, the proponent will order bulky materials such as sand, gravel and stones in quotas.

3.6.2.5 Masonry, Concrete Work and Related Activities

The construction of the building walls, foundations, floors, pavements, drainage systems, and parking among other components of the project involves a lot of masonry work, laying of plumbing and related activities. General masonry and related activities include concrete mixing, plastering, slab construction, construction of foundations, and erection of building walls and curing of fresh concrete surfaces. These activities are known to be labour-intensive and will be supplemented by machinery.

3.6.2.6 Structural Steel Works

The building will be reinforced with structural steel for stability. Structural steelworks will involve steel cutting, welding and erection of forms for beams and slabs.

3.6.2.7 Electrical Installations

A. Electrical works

Electrical work during the construction of the premises will include the installation of electrical gadgets and appliances including electrical cables, lighting apparatus, sockets, lifts, security installations and ICT Installations. In addition, there will be other activities involving the use of electricity such as welding and metal cutting.

Electrical services are a key link to any building facility. The system shall be designed to achieve high levels of system reliability, resiliency and availability to eliminate or ensure minimal points

of failure. The electrical systems shall be designed using the following codes of practice: International Electric Standards (BS & EN), IEC Standards (International Electrotechnical Commission), BS 7671 (IET Wiring Regulations), Local bylaws and codes and Green building guidelines.

B. Metre and Distribution

The project shall be metered at medium voltage i.e., 11KV, to allow for power consumption reconciliation within the development. The MV metering unit shall be housed in the RMU/Transformer rooms. This shall come with associated 11KV Gear. Dedicated transformers are proposed for this project. The transformers recommended shall be 11KV/433V of cast resin dry type.

Connection will be mainly on the Kenya Power Line with backup power using Diesel Generators with acoustic enclosures. Solar power shall also be utilized in proposed office tower. The proponent will contract an organization specialized in designing and executing electrical works to ensure electrical installations comply with national regulations and international standards.

C. Generator Back up

The project shall have backup generators to support 100% of the entire Electrical load within the development. The generator for efficiency and optimal usage, the generators shall operate in a synchronized manner. The generators proposed shall be of 415V, 50Hz Diesel generators. These shall be silent type with canopy. The generator systems shall also incorporate appropriately sized fuel storage day tanks in addition to their base tanks.

D. Solar back up

A solar PV plant and all associated installations shall be installed at the roof of the proposed development. The generated power shall then be evacuated and fed into the central Two Rivers Power Company grid system.

E. Earthing

Proper earthing systems for the premises shall be designed for to ensure electrical protection is achieved for all equipment and personnel within the premises. The earthing systems to be considered shall be:

i. MV switchgear Earthing
ii. Transformer Starpoint and Body Bonding / earthing
iii. LV Earthing
iv. ICT Earthing
v. Lightning protection earthing.
vi. Generator neutral and body bonding/ Earthing

All earthing systems shall be designed and installed to target an earth resistance value of at least 3 Ohms or less.

3.6.2.8 Mechanical Services – Plumbing and Drainage

Plumbing works will entail; low flush sanitary fittings, plumbing pipework and water storage. Installation of pipework will be done while doing plumbing works, drainage and sanitary fittings to connect grey water from the office tower to Two Rivers Water and Sanitation Company Limited waste water treatment plant. Plumbing installation shall comply with national regulations and

international standards. The system shall be designed to achieve a high level of system reliability, resiliency, availability as well as ecological considerations.

a) **Water Sources:** The water will be supplied by Two Rivers Water and Sanitation Company. The source comprises of water from supply mains as well as a borehole.
b) **Water Demand:** Water requirements shall be based on BS EN 806:2 and the Kenyan building code. The estimated daily demand is about 180m3.
c) **Water Storage:** The water will be first stored in underground tank before being pumped to high level tanks located at the roof level of the building with a capacity of 1.5 days storage. The underground tank will be portioned into two i.e Potable water in one section with about 3 days storage and Firefighting water storage in the other section.
d) Water Distribution: Distribution of the water systems will follow the following criteria; Water will be pumped from the underground storage tanks to high level/roof tanks where it shall be distributed to all the floors via gravity; Water supply pipes shall be PPRC PN 20 as minimum to ISO 15874 standard and the water will be metered via smart water metering system.
e) Drainage: The drainage system for the development shall be considered as follows; drainage pipes and fittings will be done in HDPE waste systems to BS EN 12201 and ISO 4427: the proposed foul drainage system shall be a fully vented single pipe system: the roof drainage shall be directed down via rain water down pipes to ground level where it shall join the rest of storm water drainage to civil engineers details.
f) Sanitary Ware & Fittings: The guiding principle in the selection of sanitary fitting shall be quality, efficiency and purpose efficacy. EDGE requirement shall be a guiding factor to ensure water efficiency.

3.6.2.9 Communication facilities and systems/ ICT Infrastructure

The system shall be designed to achieve high levels of system reliability, resiliency and availability to eliminate or ensure the development is a state-of-the-art development. The Key areas to be considered are:

a) ICT Fiber Backbone: A Fiber ICT backbone shall be installed into the building linking the tenant spaces to the Main ICT room.
b) Central TV: A centralized TV system shall be provided to allow each tenant to connect at their floor level ICT duct. This shall comprise of central Satellite Dishes and Terrestrial Aerials located at a central place on the roof space and all cabling done to the floor ICT ducts**.** Individual tenant will not be allowed to install individual aerials or dishes but will connect to the common central TV infrastructure. The tenants shall only be required to install within their own spaces a decoder for the TV provider they choose.
c) Intercom System: A central Voice intercom system shall be designed for the building. This shall ensure that there is communication between the receptions / management offices and the various tenant spaces.
d) Fire Alarm: An Addressable Fire Alarm system shall be designed for the development to ensure safety of the tenants within the premises. This shall include: Automatic fire detectors (Heat / Smoke) to all the public spaces, provision for fire detectors / Systems within the Tenant spaces, sounders at various places to give an alarm, call points (Break glass) at various points within the premises for manual activation by anyone who spots a potential hazard and a fire alarm Panel located within the monitored spaces. The system shall be an automatic

warning system to ensure early evacuation of tenants in event of any hazard spotted or detected.

e) **Building Management System:** A Building Management System shall be installed to monitor and control various services in the development, including HVAC, lighting, power distribution, water supply, FLS, fire alarm systems, access control, elevators, and security surveillance. The integration of these services under a single platform ensures enhanced energy efficiency, centralized oversight, reduced operational costs, and improved occupant comfort and safety.

f) **Voice evacuation and Background music:** A voice evacuation and background music system shall be installed in the development to provide automated emergency messaging and ambient audio control throughout the building. Voice evacuation shall ensure clear and timely instructions during emergencies, aiding safe and orderly evacuation. Background music shall enhance the ambiance in common lobbies, contributing to a more welcoming and professional environment for occupants and visitors. Integrating both systems within the Building Management System shall enable centralized control, scheduling, and seamless coordination with other building services.

3.6.2.10 HVAC System

The HVAC system refers to heating, ventilation and air conditioning system to ensure optimal air quality for occupied spaces or area housing MEP equipment. The HVAC systems shall be designed to comply to the Ashrae Standards and CIBSE Guide.

a) **Natural/Mechanical Ventilation:** Car parks will have a combination of natural and mechanical ventilation. Mechanical ventilation will be done at basement 03 where natural ventilation is a challenge. For basement 02 and 01 a combination of natural ventilation with jet fans will be employed to ensure optimal air quality. The washroom shall be mechanically ventilated though riser duct strategically located in the space for this purpose.

b) **Air Conditioning:** Air Conditioning system will be allowed for in critical spaces like ICT rooms and other management facilities. The offices have been design with access to natural ventilation. Where natural ventilation is not adequate due to office partitioning location for placement of air conditioning out door units have been provided. This will be done by individual office owners. Control shall be employed by the management to ensure to ensure energy efficient HVAC system is employed.

3.6.2.11 Energy sources and lighting systems:

Various lighting systems shall be deployed across the project with emphasis on the core areas. Tenant spaces shall not be fitted and the responsibility of fitting lights shall be left to the tenants. The core areas shall be lit adequately and the choice of fittings shall be done in conjunction with the client and architect. Emergency lighting shall also be provided for the common areas and fire escape routes. *LED and Energy saving Luminaires shall be proposed for this project to ensure efficiency and sustainability*.

3.6.2.12 Lightning Protection

An Early Streamer Earthing (ESE) lightning protection system shall be designed for the project. This shall include spikes on the highest points of the building, down conductors and earth points located at the ground level.

3.6.2.13 Travel Services

Travel services are critical items for any building which has floors above ground. This is to ensure movement of persons especially the physically challenged who should feel accommodated within any space within the development.

3.6.2.14 Fire Life and Safety Protection Systems

Fire, Life & Safety is a key element to any occupied building facility. The design of a fire protection and fighting system shall be deigned to achieve the following:

- Life Safety of Occupants
- Property Protection
- Compliance with Relevant Statutory and International Standards.

The system shall be designed to achieve high levels of system reliability, resiliency and availability at any point of need.

Water storage of about 250m^3 shall be provided at basement 02 from where it is pressurized through pumping system to various firefighting systems.

Various Fire Fighting systems shall be designed for installations in the development. These shall be as follows:

- ***Sprinkler System:*** An Automatic sprinkler system shall be installed in all car parks. It will also be installed at ground and podium level. Tap-off point will be provided per floor for individual office owner to extend into their offices as per their office partitioning
- ***Wet Riser:*** A wet-type hose stream system will be provided as part of the building's integrated fire protection system. It shall have water pressurized from the same system serving the sprinkler system. There shall also be landing valve and hose at every floor level strategically located for effective firefighting. It shall also have a connection to breeching inlet where the fire brigade from local authority can connect fire engine as the need maybe.
- ***Fire Hose Reels:*** Hose reel is meant to serve as a first aid measure in fighting small fire. It shall have water pressurized from wet riser system with required pressure reducing valve as per demand. The hose reel will be located at every floor level in compliance with standards
- ***Fire Extinguishers:*** The extinguishers shall serve as a rapid response against small incipient fire so as to extinguish the fire before it develops into a major hazard. Carbon-Dioxide of 5kg, 9Kg Dry Chemical Powder and 9kg foam portable extinguishers shall be provided at every floor strategically located for quick and effective firefighting.

3.6.2.15 Security Services

Proper security installations and considerations also ensure that the developer can get potential clients. The Key installations to be considered are:

a) **CCTV:** The development will be designed with a CCTV system which shall ensure general coverage of all the common and external areas. Cameras shall be proposed for the spaces to ensure monitoring is done with the highest precision and advanced technologies. The system shall also consider a storage system for any playback scenarios as shall be required. Display screens shall also be deployed at the Control Rooms for any viewing

b) Access Control: An Access control system shall be deployed to the critical spaces within the development. This shall include security spaces, ICT rooms and any other critical management spaces.

c) **Pedestrian Control:** Pedestrian Control system shall be deployed to the entrance spaces within the development. This is to ensure all the people who enter the development are scanned and ensure no entry of illegal material that can harm the tenants. The installations shall include: Walk Through metal detectors, luggage scanners, turnstiles and any other requirements.

d) **Vehicular Control:** Vehicular Control system shall be deployed to the vehicle entrance spaces within the development. This is to ensure all the vehicles which are allowed to access the development are scanned and authorized. The installations shall include: Boom barriers, bollards and scanners (where necessary).

3.6.2.16 Traffic Management

Entry for site works will be through the Nothern bypass Road. Working hours shall be those in the NEMA EIA License and in force Building and Civil Engineering Trades in Kenya. No work shall be carried out at night or on gazetted holidays unless necessary where a permit shall be obtained from NEMA.

To ensure the protection of motorists, pedestrians and cyclists, the proponent will employ traffic marshals to ensure the proposed development construction activities do not bring traffic snarl-ups around the proposed project site. A detailed Traffic Impact Assessment has also been done to address traffic related issues.

3.6.2.17 Landscaping

The developer will adopt landscaping features that create a serene environment for the office tower

3.6.3 Key project activities during the operation phase

a) The facility users

The Proposed office tower, when completed will target both local and foreign companies.

b) Electrical System

The proposed facility will be connected to the Kenya Power Limited Company (KPLC) electricity main line which will be used in all phases of the project. The necessary guidelines and precautionary measures relating to the use of electricity shall be adhered to.

c) Solid Waste Management

In terms of operational waste, a refuse room shall be provided on-site for separation of waste; and recycling bins will be clearly labeled for use by the tenants and visitors. The scheme will utilize a proper waste management system with the following facilities:

- Enclosed Waste Room for efficient management
- Separate storage for hazardous waste
- Recycling systems

Electronic waste, paper and cardboard, plastic, metal and cans, glass bottles, and food waste will all be separated during operations. The proponent will contract a NEMA licensed waste company to handle all wastes on the basis that they will collect the separated waste in trucks that maintain separation, and that will have an extensive sorting site. Plastic waste will be recycled and reused.

The proponent will ensure that the volume of solid waste generated within the entire facility is minimized through the principles of reduce, re-use and recycle.

d) Sewerage System/Liquid Waste Management

The proponent plans to channel all waste water to Two Rivers Water and Sanitation Company Limited Wastewater treatment plant. The water from the plant will be treated and used to flush toilets and to irrigate the office tower's landscaped areas.

e) General Repairs and Maintenance

The proposed office tower and support facilities will be repaired and maintained regularly during the operational phase of the project. Such activities will include the repair of building walls and floors, repair and maintenance of electrical gadgets, painting and replacement of worn-out materials among others.

f) Emergency and Disaster Preparedness

The contractor and proponent shall endeavor to provide a safe environment which is required of any investment through internal policies and protocols, risk mitigation strategies, creating direct links with the relevant civic authorities and establishing contracts with professional private contractors able to respond to emergency situations.

In case of an emergency relating to fire, spill of materials, theft or major injury, the ESIA team recommends that Emergency telephone numbers to the nearest fire station, Police station, and Health facility be strategically displayed.

g) Traffic Management

The proposed project is to be developed within the Two Rivers Mixed Land Use Development, accessed from both the Northern Bypass and Limuru Road. Figure 3-4 shows the main site Access Road from Limuru road to the project site.

h) Security systems

The proponent shall employ the following strategies to guarantee security within the proposed development;

- Conducting regular risk assessments of the facility;
- Screening of all persons entering the project at the main gate and main entrances of the building;
- Employment of security personnel
- Installation of Security Equipment such as CCTV System, Access Control for critical rooms, pedestrian access control and Vehicular Access control system
- Organizing for Emergency preparedness training.

3.7 Description of the Project's Decommissioning Activities

a) Demolition Works

Upon decommissioning, the project components including building, pavements, drainage systems, parking areas and the perimeter fence will be demolished. This will produce a lot of solid

waste, which will be reused for other construction works or if not re-usable, disposed of appropriately by a NEMA licensed waste handler.

b) Dismantling of Equipment and Fixtures

All equipment including electrical installations, furniture, finishing fixtures partitions, pipework and sinks among others will be carefully dismantled and removed from the site upon decommissioning of the project. Priority will be given to the reuse of this equipment in other projects. This will be achieved through the resale of the equipment to other building owners or contractors or donation of the used equipment to schools, churches and charitable institutions.

c) Site Restoration

Once all the waste generated from demolition and dismantling works is removed from the site, the site will be restored through replenishment of the topsoil and vegetation.

3.8 Green Building Technologies

The Proponent will put in place the following Waste Management, Energy and Water conservation technologies to ensure the sustainability of the office tower.

a) Water Conservation System; Efficient plumbing fixtures shall be employed to comply with EDGE requirement in terms of water conservation.

b) Waste Recycling and Recovery System

Solid Waste Management: In terms of operational waste, spaces will be provided on site for separation of waste; and recycling bins will be clearly labeled for use by the staff and guests. Electronic waste, Paper and cardboard, plastic, metal and cans, glass bottles, and food waste will all be separated during operations. The appointed waste collection company will be awarded a contract on the basis that they collect the separated waste in trucks that maintain separation, and have an extensive sorting site. Plastic waste generated by the facility will be recycled and reused.

Liquid Waste Management: All grey water shall be channelled to Two Rivers Water and sanitation Company Limited waste water treatment plant. Recycled water will be used to flush toilets with low flush sanitary fittings. The treated water will be utilized to irrigate the landscaped areas

c) Energy Conservation: The proponent will put in place the following measures in a bid to reduce energy consumption:

- LED lighting and lighting controls will be installed thus saving up to 50% of energy on lighting.
- Use of mechanical ventilation system with EC/VFD fans thus consuming less energy
- Automation of HVAC system responding to load demand.
- Use of VFD pumps for potable water.
- Use of sensor-controlled lighting system.
- A Building Management System (BMS) for Mechanical, Electrical and Plumping (MEP) systems monitoring and operation optimization will be installed.

d) Use of Renewable Materials: The proposed development will incorporate the use of locally available masonry stones, concrete blocks, coral stone and timber; low VOC paints, recycled materials and sustainable wood products.

e) Use of Renewable Energy: A solar PV plant and all associated installations shall be installed at the roof of the proposed development. The generated power shall then be evacuated and fed into the central Two Rivers Power Company grid system.

f) Landscaping: The proponent shall plant native plants that require less water and maintenance, use water efficient irrigation systems and construct smaller and shallower water features that minimize water evaporation and run off.

g) Facilities for the aged and disabled persons: The proposed office tower design is user-friendly and accessible to all persons. The facility has been designed to have lifts for easy accessibility. The office tower will also incorporate separate sanitation facilities for the physically handicapped.

h) Use of local materials: Majority of the building will be built from locally available materials. The contractor will be required to locally source masonry & coral stone.

3.9 Materials to be Used, Products and By-products

a) Materials to be used/ Inputs

The materials to be used in the project include but are not limited to:

- Construction raw materials: i.e. sand, cement, stone blocks, cobble stone, crushed rock (gravel/ ballast), Porcelain tiles and other ceramic fittings, parquet, clay vent blocks, iron fittings and wooden fixtures and fittings (such as doors and windows), Plaster board, glass, steel metals, hard wood timber, vinyl paints, High-density Polyethylene (HDPE) Pipes and power cables among others. All these should be obtained from licensed dealers and especially those that have complied with the required environmental management guidelines and policies.

The table below presents a summary of waste that will be generated by the project activities and proposes appropriate waste management strategies.

Table 3-1 Waste generation and management summary

Waste Types /classification	Material recovery	Disposal
Soil	▪ Cut to spoil	Clean fill
Soil & rock	▪ Cut to spoil	Clean fill
Excess concrete / set concrete inert	▪ Crushing and reuse of materials ▪ Water recovery and reuse ▪ Roading and pavements	Construction and Licensed disposal site

Concrete washings /potentially toxic in receiving environment	Water recovery and reuse	Treat wash water by pH correction & evaporation in lined pit; construction and demolition landfill
Iron & scrap steel /non hazardous	Segregated and stored for reuse or market	
Non-ferrous metal /non hazardous	Segregated and stored for reuse or market	
Bricks and tiles / non-hazardous	Segregated and stored for reuse or market	
Packaging / non-hazardous	Segregated and stored for reuse or market	
Pallets / non-hazardous	Segregated and stored for reuse or market	
Plastics / non-hazardous	Segregated and stored for reuse or market	
Paper and cardboard /non hazardous	Segregated and stored for reuse or market	
Timber untreated	Segregated and stored for reuse or market	
Timber treated /potentially hazardous	Segregated and stored for reuse or market	Disposed in a licenced facility
Paints and chemicals /hazardous		Stored in sealed containers in bunded storage / disposal in licensed facility
Contaminated soil /hazardous		Disposed in a licenced facility

- Construction machines including; machinery such as trucks, concrete mixers, tools and other construction equipment.
- A construction labour force of both skilled and non-skilled workers. They will require services such as clean drinking water supply and sanitation facilities.
- Large volumes of water for construction purposes which will be supplied by Two Rivers Water and Sanitation Company
- Power will be sourced from the main KPLC grid.

b) Expected Waste

i. **Construction Waste**: Paper polythene, metal shavings, cement, concrete, welding particles, plastics, sand, Grey water, adhesives, paints, soil, plants, cloth, rubber.

ii. **Air Emissions** from vehicle engines and burning and friction operations (CO_2 and SO_x). Oil and fuel spills from vehicles and storage of oil and fuel. Dust from the movement of vehicles and excavation activities.

iii. **Sewerage and domestic/Municipal waste** emanate from sanitary systems and wastewater generated from construction activities and make their way to drainage systems or possible lines.

c) Output

The products will include but not be limited to:

- Lettable Office Spaces
- 700 car parking spaces
- Utilities including water and sewer systems
- Other support facilities

3.10 The Proof of Land Ownership

Two Rivers International Finance & Innovation Centre (TRIIFIC) Twin Tower Company SEZ owns plots 17, 18 and 19 forming part of Land Reference Number 22/365. The land ownership document has been attached as *Annex 4.*

3.11 Project Cost

The project is anticipated to be undertaken within 24 months i.e., two years) at a cost of approximately ***One Billion, Four Hundred and Ninety-Seven Million Twenty-Two Thousand Four Hundred and Ninety-Nine Kenyan Shillings only (Kshs.1,497,022,499).*** The Bill of Quantity document detailing a breakdown of the project costs is attached as ***Annex 16.***

4 BASELINE INFORMATION OF THE STUDY AREA

4.1 Introduction

This chapter describes the current environmental baseline setting around the proposed project site. The information presented here has been obtained from primary and secondary sources. The detailed baseline survey on the physical environment, biological environment and, sociocultural and economic environment are discussed in this chapter.

4.1.1 Sources of baseline information:

The following are some of the identified sources of the baseline information:

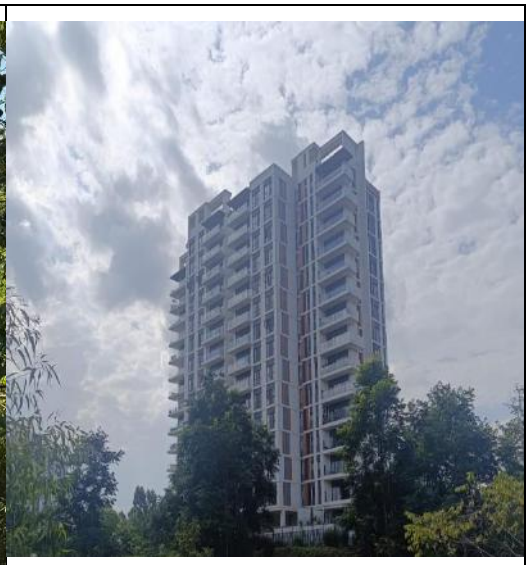
- Observation during site visit;
- Nairobi City County Integrated Development Plan (CIDP), 2023-2027.
- Kenya National Bureau of Statistics (KNBS) National Census report, 2019; and
- Key informants.

4.2 Project Location & Surroundings

The proposed project site is located on GPS Coordinate 12'46.19"S; 36°47'51.36" at the Two Rivers Precinct, Nairobi County.

The project site is surrounded by Victoria at Two Rivers to the North, Riverbank Apartments to the Northeastern, Loft residence & River Gichii to the East, an events ground to the south and Two Rivers Mall to the North western side of the site.

Loft Residence Apartments



Riverbank Apartments

Victoria at Two Rivers

Plate 4-1 Proposed project site surrounding

4.3 Administrative Setting

The project is located within Westlands Sub- County, Highridge location, Karura Sublocation Nairobi County. The sub-county has developed into a major commercial and economic area outside the Nairobi Central Business District

4.4 Physical Environment

4.4.1 General Climate

At 1,795 meters above sea level, Nairobi experiences a moderate climate. Under the Koppen climate classification, Nairobi has a subtropical highland climate. The altitude makes for some cold evenings, especially in the June/July season when the temperature can drop to 10 °C (50 °F). The sunniest and warmest parts of the year are from December to March, when temperatures average the mid-twenties during the day. The mean maximum temperature for this period is 24 °C (75 °F).

There are two rainy seasons but rainfall can be moderate. The long rains form the first season and fall in the months of March to May, and the short rains forming the second rainy season, fall between October and December. The cloudiest part of the year is just after the first rainy season, when, until September, conditions are usually overcast with light drizzles. The mean annual rainfall ranges between 850- 1050mm. As Nairobi is located close to the Equator, the differences between the seasons are minimal.

The "Two Rivers Development Project" site lies at an altitude of 1680m above the sea-level. The project area enjoys moderate cool climatic conditions

4.4.2 Hydrology and Water Resources

The main rivers in Nairobi County are the Nairobi River, Ngong River and Mathare River. The rivers join east of Nairobi and meet River Athi, eventually flowing into the Tana River which flows into the Indian Ocean. Other tributaries of the Nairobi River Basin include; Kamiti River (Gatharaini), Rui Ruaka, Karura Ruiru and Kirichwa.

Two Rivers Development property has two streams that traverse through the property: River Gichii which is temporary with low flows and has been used to feed 3 existing weirs within the property with the last one at the plot border of the proposed site. The other river is River Ruaka that drains on the western side towards south east. River Gichi borders the proposed project site to the Eastern side.

Plate 4-2 A view of river Gichii and a weir at the plot boundary.

4.4.3 Drainage

The project site area falls in the drainage basin of the Athi River. Athi River flows from the Southwest to the Northeast through Nairobi City, and is joined by the Kamiti, Thiririka and Nalaruru Rivers in the eastern part of the Nairobi before draining into the Athi River. Ruaka River, originates from hilly areas to the northwest of the project area. The river joins the mainstream of the Athi River that flows generally from the southwest to northeast in the eastern part of Nairobi.

4.4.4 Topography

Nairobi lies at an average altitude of 1,680m above sea level, but this height ranges from 1500m (to the East) to 2300m (to the West). It is located at longitude 36o 50' East and latitude 1o 18' South about 140 km South of the Equator and situated at an elevation of about 5,500 feet above sea level, placing its high effect for the cooler air to keep its temperatures moderate.

The Nairobi City is characterized by undulating hilly topography with an elevation ranging from 1,460 m to 1,920 m. Lowest elevation occurs in the Athi River at the eastern boundary of the city while its highest is at the western rim of the city. It is unique that it has the Nairobi National Park with an area of 117 km2 within its administrative area, extending along the western boundary and attracting a large number of international and domestic tourists annually. The project area is sloping, with the land gradually slanting and lies at an altitude of approximately 1880 meters above sea-level.

The project area has mild slopes with comparatively higher elevation. The development plot features a middle ridge that gently slopes on both sides towards the riverine wetland that forms the Gichi stream (which is located at an elevation of 5689 feet). The site slopes from west to East.

4.4.5 Soils and Geology

The soils in Nairobi County are products of weathering of mainly volcanic rocks. This weathering has produced red soils of more than 50 feet in thickness. Various subdivisions are recognized in Nairobi according to the drainage, climatic regions and slopes. Particularly soils found at the project site area are defined as clayey sandy silt characteristically having high to extreme plasticity. Soils in Ruaka are developed on undifferentiated tertiary volcanic and basic igneous rocks. They are well-drained, shallow, dark reddish brown though in some places they are imperfectly drained, very deep, dark gray to black, with calcareous, slightly saline deep sub-soil. They are of moderately high fertility.

The rocks in the Nairobi area mainly comprise of a succession of lavas and Pyroclastic of the Cainozoic age and overlying the foundation of folded Precambrian schists and gneisses of the Mozambique belt. The crystalline rocks are rarely exposed but occasionally fragments and found as agglomerates derived from the former Ngong volcano. Weathering has produced red soils that reach more than 15m in thickness in some parts of Nairobi.

The project area is mainly underlain by volcanic rocks, tuff and metamorphic rocks. The area is characterized with the Nairobi phonolite separated from the underlying Mbagathi phonolite trachyte's by some thickness of a few feet of dark grey tuff, which belongs to the Athi Tuffs and Lake Beds Series. The soils around the project site are red clay soils.

A geotechnical survey was conducted for the proposed project site on 19th June to 4th July 2025. The site was classified as Class E for Soft clay soil. (***Refer to the geotechnical report attached as Annex 18***) The following recommendations were made to while designing the foundation type and the appropriate depth of their placement.

- In view of the inherent variability of the ground weathering profile, continued observations during excavations is called for and the depth to the foundation stratum maybe reviewed in the light of any additional information obtained from these observations but this can only be applied where this is deemed to be most appropriate. In such a case, the Engineer may vary the foundation levels at different places upon examination of the excavated bearing stratum as this may depend on the grade of weathering of the rock encountered at the foundation level.
- The Engineer should ensure that all the footings bear on sound stratum. The upper layers of vegetative soil and red clay soils should be avoided as they are highly compressible with seasonal changes in moisture content. The entire layers should be removed and the foundation should be laid on compact, non-shrinkable and non-expansive soils.
- An effective storm water drainage system should be installed on the site to lead away all water from the foundation areas without allowing any water ponding.
- The backfill of the foundation sides should be of selected material e.g. red clay that is compacted adequately to Maximum dry density at Optimum Moisture Content to form an impermeable layer to prevent ingress of water into the foundation layers.
- The clayey soils encountered on site to a maximum depth of approximately **10.5m** are of medium plasticity with a plasticity index (PI) of **18.7%** and a linear shrinkage of **10.8**. The soils are considered suitable for onsite use as fill materials.

4.4.6 Land Use Planning and Zoning

Two Rivers Development is zoned as a mixed-use development area. The approved masterplan is attached ***5***. Two Rivers Development Limited obtained a change of user (***Annex 14***) for the land from Agricultural to Mixed Development (Residential, Commercial and Recreational). The residential and commercial facilities are separated by River Gichii with the residential buildings being located Eastern section of the river and commercial facilities on the western side

4.4.7 Baseline Ambient Air Quality

Preparing an Environmental Impact Assessment (EIA) requires baseline environmental air quality monitoring. The information gathered makes it easier to conduct ongoing monitoring and benchmarking throughout the project's construction and operation stages, guaranteeing adherence to regional laws and resolving any neighborhood concerns about air quality contamination and the mitigation strategies described in the Environmental Management Plan (ESMP). During the construction phase, key sources of air pollution will include dust from site activities, emissions from construction vehicles and machinery, and operations of the contractor's batching plant. Truck movements transporting materials and waste will further contribute to air pollution. In the operational phase, emissions from backup generators and increased vehicle traffic are expected to be the main contributors to air quality degradation.

Baseline Ambient Air Quality Measurements (AAQM) for the proposed project site were conducted was conducted on 15th July 2025 in accordance with the Environmental Management and Coordination Act (EMCA), Cap 387, the Relative Amendment Act No. 5 of 2015, and the Environmental Management and Coordination (Air Quality) Regulations, 2024. The objective of this monitoring exercise was to evaluate ambient concentrations of priority Air pollutants within and around the proposed site. The focus was on key gaseous and particulate parameters including Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), Total Volatile Organic Compounds (TVOCs), Hydrogen Sulphide (H_2S), Ammonia (NH_3), Carbon Dioxide (CO_2), And Particulate Matter (PM2.5 and PM10). Meteorological variables such as Temperature, Humidity, Pressure, and Wind Speed were also recorded to provide contextual insight into dispersion and accumulation potential. The methodology for the assessment is detailed in the ***Ambient Air Quality Assessment Report attached as Annex 7***.

Plate 4-3 **Ambient Air Quality Measurements onsite**

The sampling exercise was undertaken at four designated points strategically located at the corners of the project site. The selection of these sampling locations was guided by multiple environmental and technical considerations to ensure the reliability and representativeness of the data collected. Each point was evaluated based on its proximity to known or potential sources of air pollutant emissions, such as neighboring construction activities, vehicular movement from adjacent access road and parking area, and natural features like vegetation and nearby water bodies while also ensuring alignment with US EPA siting protocols (e.g., unobstructed airflow, minimum height clearances, and distance from pollutant sinks).

Ambient Sulphur Dioxide (SO_2) concentrations across the monitoring points ranged from 42.89 to 59.76 µg/m^3. While all values remained within the EMCA limit (80 µg/m^3) and the IFC guideline (125 µg/m^3), they exceeded the WHO 24-hour guideline of 40 µg/m^3, suggesting a moderate presence of sulfur-based emissions. These levels may reflect regional influences from fuel combustion from neighboring construction machinery or external vehicular activity.

Ambient monitored Carbon monoxide (CO) levels ranged from 1.355 mg/m^3 to 1.503 mg/m^3, comfortably within the EMCA (4 mg/m^3) and WHO/IFC (4-10 mg/m^3) limits. CO does not appear to be a pollutant of concern at the site during the monitoring period.

Particulate Matter (PM) values were more variable. PM2.5 concentrations ranged from 24.11 to 30.84 µg/m^3, exceeding both the WHO guideline (15 µg/m^3) and the IFC threshold (25 µg/m^3) across multiple points. PM10 concentrations ranged from 66.82 to 72.91 µg/m^3, exceeding both WHO (45 µg/m^3) and IFC (50 µg/m^3) guidelines but remaining within the EMCA limit of 100 µg/m^3. The highest levels were recorded at points with bare and exposed soil, indicating potential for dust generation during dry periods.

Hydrogen Sulphide (H_2S) levels were uniformly low across all points, measured at 0.0008 µg/m^3. This indicates negligible impact from sanitation sources or organic decay. These levels are well below any threshold of concern and are not expected to contribute to odor or health impacts under current site conditions

TVOC levels, while measurable, did not have clear benchmark thresholds under EMCA regulations and were therefore included for context only.

Meteorological conditions were typical of Nairobi's dry season, with moderate temperatures (24.47–25.25°C), relatively high humidity (49.95-51.66%), and very low wind speeds which can limit pollutant dispersion and favor stagnation in poorly ventilated areas.

It is recommended that targeted dust control measures such as surface paving of walking paths, routine water spraying, and incorporation of vegetation buffers are implemented. Although no active machines were present during the monitoring period with at least quarterly monitoring during the construction phase, any future site operations involving diesel powered equipment should consider strategic placement and acoustic enclosures to minimize emissions of total volatile organic compounds (TVOC). For continuity, it is advised that the facility conduct periodic air quality monitoring to proactively assess seasonal impacts and track any emerging trends.

4.4.8 Baseline Ambient Noise Levels

The project site is located within the Two Rivers Development, a mixed-use area with ongoing commercial, residential, and infrastructure development. Existing noise sources include moderate vehicular traffic along Limuru Road, activities within the nearby shopping mall, and

occasional construction works within the vicinity. Sensitive receptors within the area include nearby residential apartments (Riverbank Apartments, and the Loft Residency).

The baseline noise measurements were conducted on 15th July 2025. The background noise levels measured in the project area were used in assessing the baseline noise conditions whereby noise levels were taken from Four (4) positions on site and measured over two minutes using a calibrated and KEBS approved noise meter. The objective of the noise survey was to identify areas within and around the proposed facility where users, employees, or neighbouring receptors may be exposed to harmful levels of noise, and to develop strategic recommendations that promote compliance with national environmental legislation and global public health standards.

The noise level measurements were undertaken using a Class 1 Precision Sound Level Meter, compliant with IEC 61672-1:2013 and ANSI S1.4 standards. The equipment was calibrated before and after use, operated at fast response, and configured to capture key acoustic parameters including L(A)eq, L(A)peak, L(A)min, L(A)max, and octave band frequency distributions. Measurements were collected under typical operational conditions to reflect normal use of the surrounding environmental contributors such as vehicular movement, and ongoing construction. Monitoring was carried out on 15th July 2025, with 15-minute sampling intervals at four locations as detailed in the Noise Levels Assessment Report, providing a robust dataset for noise exposure characterization. ***The Baseline Ambient Noise Measurements Report attached as Annex 8.***

Plate 4-4 Ambient Air Quality Measurements onsite

The analysis of the monitoring results revealed that the majority of measured locations at the proposed office site exhibit Environmental Noise levels significantly within national regulatory thresholds and international health-based exposure limits. The highest equivalent continuous noise level (Leq) was observed near playground towards TRIFIC border at 50.3 dBA, which is within the EMC limit for commercial zones of 60 dBA (day) and the WHO recommended exposure

limit of 70 dBC for commercial settings. The peak noise levels (LCpeak), ranging from 83.4 dBC to 96.0 dBA across different points, were within the WHO's 100 dBA limit intended to prevent immediate risk of hearing damage. These noise levels, while compliant, are a combined result of compounding environmental factors such as adjacent construction activity.

To address the observed acoustic challenges and ensure sustainable compliance, the consultant proposes a set of practical, site-specific recommendations that prioritize both public health and environmental integrity. These include the installation of sound-absorptive materials or acoustic barriers during construction of the proposed office to reduce the reflection and projection of impulsive sounds from the surrounding zones. Operational controls should be incorporated into the site management strategy. This includes scheduling high-noise activities such as construction during periods when ambient background noise is typically elevated (e.g., daytime hours), thereby minimizing perceptible disturbances to adjacent developments and the public.

Clear and informative signage should be installed to identify noise-sensitive zones within the development. In addition, internal awareness initiatives targeting staff and contractors can foster a culture of shared responsibility in managing noise impacts.

4.4.9 Water Quality

Water quality is essential in determining the extent of pollution and suitability for usage of water for domestic purposes. A full examination of the physical, chemical and biological characteristics is perquisite especially for raw water supply. The water parameters have to meet set guidelines and standards for domestic water provided by local authorities {**KS EAS 12:2018 & EMCA (Water Quality) Regulations, 2024**)}

A total of two water samples (2 litres each) were collected from River Gichii and submitted to Central Water Testing Laboratory, a NEMA Accredited Laboratory for water testing and analysis.

Table 4-1 Sampling points for water quality analysis

Sample No.	Sampling Point	GPS Coordinates
A	Upstream	-1.212095°, 36.797732°
B	Downstream	*-1.212822°, 36.798930°*

An analysis was conducted on each sample and the results are as per the water analysis report that is annexed to this report (***Refer to Annex 9***) and presented alongside Environmental Management and Coordination (Water Quality) Regulations 2024 for pollution monitoring.

Water use from the streams is mainly for agricultural activities. The following parameters were measured and assessed from the water samples: PH, Color, Turbidity, Total Phosphorus, COD, BOD, Oil and grease, Total Suspended Solids, Residual Chlorine, Total Nitrogen, Total Coliforms, E. coli and Ammonia. Based on the results, the color for the downstream water sample (125) was found to exceed WHO Maximum guideline of 50. All other parameters were within maximum permissible levels.

Parameters	Unit	Results		NEMA Standards
		Upstream	*Downstream*	
Ph	PH Scale	7.1	6.8	6.5-8.5
Color	mgPt/l	125	25	15
Total Phosphorus	mgP/l	0.1	0.1	2

COD	mgO_2/l	32	32	50
BOD (20C)	mgO_2/l	10	9.0	30
Oil and grease	Mg/l	ND	ND	NIL
Total Suspended Solids	Mg/l	20	20	30
Residual Chlorine	MgN/l	ND	ND	0.10
Total Nitrogen	MPN/l	0.2	0.2	2
Total Coliforms	MPN/100ml	1530	2420	NIL/100ml
E. coli	MPN/100ml	80	50	NIL/100ml
Ammonia	MgN/l	ND	ND	0.5

E. coli is an indicator of faecal pollution and should not be detectable in any 100-ml sample. Whereas coliform bacteria are unlikely to cause illness, feacal coliform is an indicator of the potential presence of pathogens in fresh water. An E. coli bacterium is a normal component in the large intestines of humans and other warm-blooded animals and can be excreted in their faecal material. Organisms causing infections or disease (pathogens) are often excreted in the faecal material of humans and other warm-blooded animals. However, their presence in drinking water indicates a risk that disease-causing organisms (pathogens) could be in the water system. The total Coliform bacteria detected in all water samples was 1530MPN/100ml in upstream sample and 2420MPN/100ml in downstream which should not be detectable. The E coli bacteria was equally detected in all water samples with upstream sample being 80MPN/100ml and 50MPN/100ml for downstream which should not be detectable. The level of Total Coliform and E. coli detected in the water samples indicates faecal contamination and the presence of pathogens which pose the risk of gastrointestinal issues. This is attributed to contamination from fertilizers and animals or human waste.

Water's color comes from dissolved organic matter, such as tannins from decaying plants (yellow/brown) or phytoplankton (green), and metals like iron and manganese (brown/red/black). It can also be caused by suspended sediments (brown/red), such as clay from soil runoff, or algae in high concentrations (green). The color of both water samples exceeded the permissible limits of 15. This could be attributed by pollution from surface runoff.

The Water Resources Authority conducted pegging of the Gichii stream that dissects the Two Rivers development and is located on Eastern side of the proposed project site. The marked riparian land ranged from 8.5 Metres to 10 Metres from the stream. The proposed project design has maintained the riparian reserve. Stormwater will be managed through dams and a piped drainage system with oil interceptors at outfalls. The proponent will ensure the project activities do not interfere with the quality of the water.

4.5 Biological Environment

4.5.1 Flora and Fauna

The proposed project site has various tree species including Eucalyptus, *spondias mombin, Trema cannabaceae, Lantana camara, Spathodea nilotica, Fraxinus pennsylvanica, Markhamia lutea, Triadica sebifera, styphnolobuim japonicum, Trema orientalis, populus heterophyll, Grevillea paniculate and Capparis micracantha* among others.

The western section of the project site entails young trees that are approximately 2 years old, whereas the eastern section of the project site entails middle aged to mature eucalyptus trees that will require clearance before commencement of the construction works. The consultant

recommends safe uprooting of the young trees and planting them along the eastern boundary of the project site.

Along Gichii stream and the weirs vegetation is an assortment of bamboo thickets, Cyperus species and Typha species, aquatic reeds and shrubs. No large wild animals were observed within the proposed site apart from a few birds and insects.

Plate 4-5 A view of vegetation on the proposed project site

Table 4-2 Eucalyptus Globulus

4.6 Socio-Economic Environment

4.6.1 Population

The project site is located in Westlands sub-county in Nairobi County. According to the Kenya National Bureau of Statistics census carried out in 2019, the total population of Nairobi County is **4,397,073 people** with a population density of **6,247 persons** per km^2 and an average household size of 2.9. Westlands sub-county is home to **308,854 people**, with **153,818** male and **155,021** female. The general growth rate of Nairobi city is approximately 4.1% a year, which signifies a steady upward population growth trend into the future.

4.6.2 Traffic Impact Assessment

A Traffic Impact Asseemment was conducted for the Two Rivers Development that aimed to review the existing traffic scenario for the area around the proposed location and the expected travel and parking demands. The study also looked at possible junction delays at the major intersections resulting from the proposed development and came up with appropriate recommendations.

Both the Limuru and Northern By-pass roads were considered as the major roads within the project area that will serve as the main external road network. These two roads start on the Nairobi-Thika Road at two different points and intersect each other just after Ruaka market centre. The minor roads include: Redhill, Ruaka, Rosslyn, and Banana, all along the Limuru road.

The proposed Vantage Office Point Towers will be accessed from both the Northern Bypass and Limuru Road. Figure 3-4 shows the main site Access Road. During the construction phase, the contractor will use an alternative route to deliver construction materials. However, during the operational phase, the project site will be accessed through Limuru Road or through the Northern Bypass.

The proposed development has provided for 700 parking spaces with additional parking facilities available within Two Rivers Development.

4.6.3 Infrastructure and Transport

Due to rapid urban growth, the provision of basic infrastructure for all has become an important concern of development planners in Nairobi. Basic infrastructural services such as Solid Waste Management (SWM) systems; Water and Sewerage Systems; Drainage and flood protection; Roads and Rail; Mass transportation; Electric installations; and telecommunications are currently under immense pressure due to ever-increasing population rates within Nairobi. Environmental pollution, congestion and problems have been the result of the under-provision of such basic services.

Nairobi city is well served with good telecommunication and transport networks such as air, road, and railway. It is centrally located to serve the Eastern African Countries. Bus and train stations are within an easy walk of the city centre. The newly launched Expressway has toll points in close proximity to the area: JKIA toll Station. The Network facilitates transportation of agricultural products from Western Kenya to the Coast. The city is a hub of road transport connecting other major towns in the country. On air transport, Jomo Kenyatta International Airport makes it easy to transport people and goods from all over the world into the country and vice versa.

4.6.3.1 Energy Access

The main sources of energy in Nairobi County are electricity, solar, LPG, biogas paraffin, charcoal and firewood. Lack of access to clean sources of energy is a major impediment to development through health-related complications such as increased respiratory infections and air pollution. The type of cooking fuel used by households is related to the socio-economic status of households/individuals. The project area is connected to the Kenya Power and Lighting Company (KPLC).

Plate 4-6 Kenya Power Supply Line

4.6.3.2 Transport

Nairobi County comprises various infrastructure development including road and railway networks, water supply, power supply, airports, transport and telecommunication systems, sewerage networks and treatment work. Key infrastructure development that links the County includes; Thika Road Superhighway together with the Eastern and Northern Bypasses, the Standard Gauge Railway and Nairobi Expressway. The most common means of public transport within the county are matatu, buses and train. The proposed facility is strategically located with easy access to the transport network. The proposed project site is easily accessible through both Limuru Road and Northern By pass Road.

4.6.3.3 Water supply

Approximately 94% of the piped water supply in Nairobi comes from rivers and water reserves in the Aberdare Ranges, north of the city. Portable water in Nairobi County is mostly piped water from Nairobi City Water and Sewerage Company (NCWSC). The source of this water is from rivers and reservoirs which undergo treatment before being distributed to consumers. The project is well served with water supply from NCWSC. However, several factors compromise the city's water quality, ranging from natural phenomena such as the high fluoride content in groundwater to anthropogenic factors such as poor wastewater treatment and environmental degradation both within the city and in the surrounding areas. The project area and many areas within Nairobi have a high potential for underground water use through construction of boreholes to

supplement the other sources of water supply. It is anticipated that the development will source its water supply from Two Rivers Water and Sanitation Company

4.6.3.4 Sewerage access

Wastewater from homesteads and industries is collected in Nairobi via a system of interconnected channels and flows to Ruai Treatment works where it's treated and effluent is released to the Nairobi River. However, due to the higher population in the slums within Nairobi, most of the wastewater is directly released to the nearby streams and rivers, accounting for the high level of pollution in the rivers. This is currently being addressed by the Rehabilitation and Restoration programme by the Ministry of Environment, Water and Natural Resources. The programme began in 2010 and is aimed at rehabilitation, restoration and sustainable management of the Nairobi River Basin in order to provide improved livelihoods and enhance environmental quality and values through well-regulated economic and recreational ventures.

The proposed office tower will channel all its wastewater to Two Rivers Water and Sanitation Company. Two Rivers Development already has in place sewerage infrastructure connecting each plot.

Plate 4-7 Road and sewer Infrastructure within the project site

4.6.3.5 Solid Waste Management

Uncollected solid waste is one of Nairobi's most visible environmental challenges, with approximately 2,475 tons of waste generated daily. Many parts of the city, particularly in low- and middle-income areas, lack proper waste collection systems. Nairobi's current waste disposal system is plagued by several issues, including the failure to prioritize solid waste management, inadequate infrastructure, and the involvement of multiple actors whose activities are not

adequately regulated. There is a pressing need to shift from traditional methods of waste disposal, such as dumping and burning, to more sustainable practices like recycling.

In terms of sanitation infrastructure, approximately 61.5% of the population utilize flush toilet systems, while 32.1% depend on pit latrines. The remaining 4.8% of the population lacks access to formal waste disposal methods. With regard to solid waste management, approximately 36.1% of households benefit from private waste collection services, while a comparable proportion relies on community-based collection initiatives operating within neighborhoods. All collected waste is ultimately deposited at the Dandora landfill and other designated dumpsites. However, the Nairobi City and Metropolitan Region continues to face escalating levels of environmental pollution, primarily driven by inadequate solid waste disposal systems.

The proponent will contract a NEMA Licensed Waste collector to handle all waste within the facility. Waste management during the construction period will be addressed through a clause in the contract between the proponent and the contractor. This clause will stipulate that the contractor must sign an agreement with a NEMA approved waste collector operating within the proposed project area. Compliance with Environmental Management and Coordination (Waste Management) Regulations, 2024 and Sustainable Waste Management Act, 2022 will be mandatory for the contractor. The proponent shall ensure Proper Waste management practices such as Separation at source, Re-use and recycling of waste are adopted during the operational phase of the project. Plastic waste generated by the office operations shall be re-used and recycled.

4.6.4 Economic Activities

The major economic activities in Nairobi County include businesses in formal and informal lines. Some of the major investments in the city are industries, service providers and office complexes among others.

The project area, located within the rapidly developing Ruaka–Runda corridor in Kiambu County, is characterized by vibrant and diverse economic activities. The dominant sectors include real estate development, retail trade, hospitality, and professional services. The presence of Two Rivers Mall—a major mixed-use commercial complex—has significantly stimulated economic growth in the area by creating employment opportunities, attracting investment, and increasing demand for residential and support services.

Numerous commercial establishments, such as banks, restaurants, supermarkets, entertainment venues, and office spaces, operate within and around the mall, catering to a growing middle-income and expatriate population. Additionally, the area features high-density residential developments, with many apartment complexes catering to professionals working in nearby diplomatic zones and Nairobi's central business district. The economic expansion is further supported by improved infrastructure, including the Northern and Western Bypasses and Limuru Road, which enhance accessibility and attract both formal and informal businesses. These economic dynamics have transformed the area into a strategic commercial and residential hub within the Nairobi Metropolitan Region, reinforcing the project site's suitability for sustainable urban development.

5 RELEVANT POLICY, LEGISLATIVE AND PLANNING FRAMEWORK

5.1 Introduction

This chapter includes a summary of the laws, regulations and institutional setup relevant to environmental and social management in Kenya. A review of the most pertinent regulations and standards governing health and safety has been included. In addition, an analysis of MEAs and their applicability to the proposed project were reviewed and presented to guide the proponent. This section also includes a review of environmental quality standards relevant to the proposed project. Kenya has in place a wide range of policy, institutional and legislative frameworks to address the major causes of environmental degradation and negative impacts on ecosystems emanating from industrial and economic development programmes. The legislative framework is meant to ensure that proposed projects are economically beneficial while being environmentally sustainable. A brief description of how the proposed project will comply with the relevant environmental quality standards has been given for each case.

5.2 Constitution of Kenya

The Constitution of Kenya is the country's supreme legislation and has Environmental provisions in Chapter Four, under 'Rights and Fundamental Freedoms', Chapter Five, under 'Environment and Natural Resources', and Chapter Ten, under 'Judicial Authority and Legal System'. The Fourth Schedule also includes environmental provisions under 'Distribution of functions between National and County Governments' and the Fifth Schedule titled 'Legislation to be enacted by Parliament'. Environmental rights and freedoms are presented in Article 42 of the new constitution, which states: Every person has the right to a clean and healthy environment, which includes the right:

- To have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and
- To have obligations relating to the environment fulfilled under Article 70.

The Kenyan constitution also gives prominence to public participation; as a general national value in environmental protection. Article 69(1) states that the State shall encourage public participation in the management, protection, and conservation of the environment. Chapter 5 Part II -Environment and Natural Resources - Article 69 (1) of the Constitution of Kenya, 2010 commits the State to:

a) Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;
b) Work to achieve and maintain a tree cover of at least ten percent of the land area of Kenya;
c) Protect and enhance intellectual property and indigenous knowledge of, biodiversity and genetic resources;
d) Encourage public participation in the management, protection and conservation of the environment;
e) Protect genetic resources and biological diversity;
f) Establish systems of environmental impact assessment, environmental audit and monitoring of the environment;
g) Eliminate processes and activities that are likely to endanger the environment; and
h) Utilize the environment and natural resources for the benefit of the people of Kenya.

Article 69 (II) states that "Every person has a duty to cooperate with state organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources."

The proposed project is compliant with the provisions of the Kenya Constitution through the undertaking of Integrated Environmental and Social Impact Assessment that incorporates the ethos of sustainable development and efficient use of natural resources

5.3 National Policy Framework

5.3.1 The Vision 2030

Vision 2030 (GOK, 2007) is divided into three fundamental pillars: economic, social and political. The social pillar aims at realizing a just and cohesive society enjoying equitable social development in a clean and secure environment. These pillars are anchored on the following foundations: Macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor; infrastructure; energy; science, technology and innovation; land reform; human resources development; security and public sector reforms.

Vision 2030 aims to transform Kenya into a globally competitive, newly industrialized, middle-income and prosperous country. The growth objectives underpinning Vision 2030 require a sustainable annual economic growth rate of more than 10% supported by industry, agriculture and services. Efficient, accessible and reliable infrastructure has been identified as an enabler for achieving sustained economic growth, development and poverty reduction by lowering cost of doing business and improving the country's global competitiveness.

It is anticipated that the proposed project will spur economic growth and development both at the construction and operational stages of its implementation through creation of a number of economic opportunities. The ideals of a safe and clean environment will be as well adopted and engraved in all the stages of the proposed project as envisioned in the social pillar of Vision 2030, which identifies Environment, Water and Sanitation as a key priority sector of Kenya's development agenda.

5.3.2 Sessional Paper No. 10 of 2014 on the National Environment Policy

This Policy proposes a broad range of measures and actions responding to key environmental issues and challenges. It seeks to provide the framework for an integrated approach to planning and sustainable management of natural resources in the country. It recognizes the various vulnerable ecosystems and proposes various policy measures not only to mainstream sound environmental management practices in all sectors of society throughout the country but also recommend strong institutional and governance measures to support the achievement of desired objectives and goals.

The broad objectives of the national environmental policy in Kenya are: -

a) To ensure optimal use of natural resources while improving environmental quality.

b) To conserve natural resources such that the resources meet the needs of the present without jeopardizing future generations in enjoying the same.

c) To develop awareness that inculcates environmental stewardship among the citizens of the country.

d) To integrate environmental conservation and socioeconomic aspects in the development process.

e) To ensure that national environmental goals contribute to international obligations on environmental management and social integrity.

This ESIA has been carried out to make sure that possible environmental and social issues are suitably addressed in accordance with the aforementioned policy declarations. The Project Proponent must additionally carry out recurring Environmental Audits after receiving NEMA approval in order to guarantee ongoing compliance with the main objective of this Session Paper.

5.3.3 Sessional Paper No. 6 of 1999 on Environment and Sustainable Development Policy.

The policy defines approaches that will be pursued by the Government in mainstreaming the environment into development. The policy harmonized environmental and developmental objectives with the broad goal of achieving sustainable development.

The key objectives of the Policy include: -

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

(ii) To ensure that an independent Environmental Impact Assessment (EIA) report is prepared for any industrial venture or other development before implementation,

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

The policy recommends the need for enhanced re-use/recycling of residues including wastewater, use of low or non-waste technologies, and increased public awareness-raising and appreciation of a clean environment. It also encourages the participation of stakeholders in the management of waste within their localities. Regarding human settlement, the paper encourages better planning in both rural and urban areas and the provision of basic needs such as water, drainage, and waste disposal facilities among others.

This policy is relevant to the proposed project in view of the potential impacts on the environment.

5.3.4 The National Climate Change Response Strategy (NCCRS), 2010

Climate change remains one of the greatest challenges facing humanity globally in the 21st Century. Locally, some of the effects of climate change experienced include temperature increases, rainfall intensification and irregularity. This policy fast-tracks and rallies nationwide actions towards climate change adaptation and mitigation of GHG's emissions.

The National Climate Change Response Strategy has the following key recommendations: Adaptation and mitigation measures in key sectors; necessary policy, legislative and institutional adjustments; enhancing climate change awareness, education and communication in the country; capacity building requirements; enhancing research and development as well as technology development and transfer in areas that respond to climate change, among many others.

It is prudent to ensure that the proposed project infrastructure design is climate-proof over its lifespan and designing infrastructure that can withstand the prevailing climatic conditions, e.g., structures that can withstand strong wind, high temperatures and flooding. Additionally, the project design has included measures aimed at mitigating carbon emissions

5.3.5 Sessional Paper No. 1 of 2017 on National Land Policy

The overall goal of the national land use policy is to provide a legal, administrative, institutional and technological framework for optimal utilization and productivity of land-related resources in a sustainable and desirable manner at national, county and community levels. The Policy is premised on the philosophy of economic productivity, social responsibility, environmental sustainability and cultural conservation.

It recognizes and addresses the effects of land mismanagement which are environmental, social, economic and political in nature. Some of these impacts include; deterioration in land quality, under-utilization of land, urban squalor, insecurity and conflict. Other fundamental issues such as compulsory acquisition and development, and security of tenure for all have also been taken into consideration

Among the key principles envisioned by the policy include;

- Land use planning, resource allocation and resource management for sustainable development to promote public good and general welfare;
- Environmental management and sustainable production in the utilization of land resources;
- Coordination and integration of institutional linkages in planning at sectoral and cross-sectoral levels to foster collaboration and decision-making among different land users;
- Equitable utilization of land resources to meet governance, social-economic and cultural obligations of the people of Kenya;

The proposed project will need to be consistent with the provisions of this Policy to ensure environmental sustainability.

5.3.6 Sessional Paper No. 02 of 2019 on National Policy on Gender and Development

The Policy spells out a policy approach of gender mainstreaming and empowerment of women and clearly states that it is the right of women, men, girls and boys to participate in and benefit equally from the development process. The NPGD provides a framework for mainstreaming gender in all policies, planning and programming in Kenya and puts in place institutional mechanisms to ensure effective implementation.

The proposed project should hence ensure gender concerns are mainstreamed into the development to ensure that the needs and interests of each gender are addressed.

5.3.7 The National Occupational Health and Safety Policy of 2012

This policy is intended to protect the safety and health of workers in workplaces. The proposed development project will provide employment opportunities to many workers in various categories.

The contractor will be expected to comply with the requirements of this policy when engaging workers in various construction activities. The preliminary environmental management plan provides mitigation measures that can be undertaken to ensure compliance with the requirements of this policy.

5.3.8 Sessional Paper No. 1 of 2021 on National Water Policy

The goal of the policy is to guide the achievement of sustainable management, development, and use of water resources in the country. The overall objective of the policy is to provide a framework that is dynamic, innovative, and effective for re-engineering the water sector. It aims at accelerating the delivery of water supply services through progressive realization of the human

right to water towards universal access and to strengthen sustainable water resource management in the country.

The proponent will be expected to use water efficiently and be mindful of the needs of the current and future generations, and in cognizance of maintaining the environmental reserve to ensure inter-generational and intra-generational existence. Additionally, the proponent should also adhere to the precautionary principle provided under this policy to ensure that there is no pollution to the nearby water resources.

5.3.9 Nairobi City County Development Control Policy, 2021

Zoning is the legal regulation of the use of land. It involves segregation of parcels of land or acres of towns in a physical development plan and ascribes to them broad classifications of appropriate use such as residential, commercial, educational, institutional, etc. The policy aims at protection of public health, welfare needs and safety, including the provision for the use of property and limitations upon the shape and bulk of the building that occupy the land. The zoning plan provided under the policy serves as a comprehensive guide for urban development in Nairobi and will be adopted and rendered effective as a legal ordinance for this project.

The proposed project site has been approved as a mixed-use development by the Nairobi City County. Roads, storm & foul drainage, water reticulation and street lighting which are adoptive to the Nairobi City standards have been factored in the project designs. This proposed project will be adjacent to access roads, hence imposing on it a building line of 6-9 meters from the access roads, and this has been factored in the designs provided. Further, the proponent is committed to the provision of adequate and functional on-site parking, to the satisfaction of Nairobi City County's Director of Roads, Public works and Transport.

5.3.10 Government of Kenya Fourth Medium Term Plan 2023-2027

The overall aim of the Kenya Vision 2030 is to transform the country into a newly industrializing middle-income country providing a high quality of life to all it's citizens in a clean and secure environment. Kenya transitioned from a Low-Income Country status to a Lower Middle-Income Country upon attaining a Gross Domestic Product (GDP) per Capita of USD 1,430.35 in 2014.

The Core Pillars for the Fourth MTP include Agriculture, Micro, Small and Medium Enterprise (MSME) economy, Housing and Settlement, Healthcare, Digital Superhighway and Creative Economy. The MTP IV 2023-2027 implements the Bottom-Up Economic Transformation Agenda (BETA), which is geared towards economic turnaround and inclusive growth through a value chain approach. BETA targets sectors with high impact to drive economic recovery. BETA's objectives are to; bring down the cost of living, eradicate hunger, create jobs, expand tax base, improve foreign exchange balances and inclusive growth.

Relevance

The proposed project supports the MTP's principles which includes expansion of revenue base as its implementation will create jobs and promote business, thus strengthening the economic pillar of the plan, which will contribute to the growth of the country's GDP rate. Additionally, jobs created will improve the livelihoods of those who shall be employed; thus it will promote the plan's agenda to bring down the National Poverty Level.

5.4 Legal Framework / Laws and Key Relevant Regulations

There are several legal provisions on environmental protection, which touch on and regulate the development of infrastructure like the proposed project. A brief review of the various legislation relevant to the development is given hereunder.

5.4.1 Environmental Management and Coordination Act (EMCA Cap 387) and its Amendment of 2015

EMCA Cap 387 applies to all policies, plans and programs as specified in part IV, part V and the Second Schedule of the Act. A number of legislations are in place to ensure the provision of a healthy and clean environment, but EMCA Cap 387 takes precedence. It is the principal law that governs the use, management and regulation of environmental resources in Kenya. Under the second schedule, **amended vide legal notice number 31 of 2019**, the proposed project is categorized as a **High-Risk Projec**t under urban development projects. This Study Report has been prepared for submission pursuant to Regulation 7 (4) of the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019. The assessment was conducted following a recommendation under sub-regulation 3 (a) stating, "Where Authority considers that the proposed project will have a high environmental impact, it shall recommend that the proponent should prepare and submit a study report."

This project is listed under High-Risk Project for which an Integrated Environmental and Social Impact Assessment study report is prepared. This report has been prepared in compliance with the provisions of the Act and will be submitted to the National Environment Management Authority (NEMA), so as to obtain an EIA License, prior to the implementation of the proposed project. The Proponent will be required to commit to implementing the environmental management plan laid out in this report and any other conditions laid out by NEMA. Through EMCA, various regulations have also been gazetted which the proponent is expected to abide as discussed below;

5.4.1.1 Environmental Management and Coordination (Environmental Impact Assessment and Audit) Regulations, 2003 and (Amendment) Regulations, 2016 (L.N 149) & 2019 (L.N 32)

Environmental Impact Assessment under the EMCA Cap 387 Act is guided by the Environmental Impact Assessment (Assessment and Auditing) *Regulations of the year 2003, which is given under legal notice no. 101 and (Amendment) Regulations, 2016 (L.N 149) & 2019 (L.N 32)*. Regulation 11(1) provides that Environmental Impacts Assessment be conducted by the proponent in accordance with the terms of reference developed during the scoping exercise and approved by the Authority. The regulations stipulate the ways in which environmental impact assessment and audits should be conducted and categorically assigning a lead expert, qualified in accordance with criteria for listing of experts as outlined under regulation 13(2), with the responsibility for undertaking them. *The project falls under the second schedule of EMCA, Cap 387 High Risk Project that requires an Environmental Impact Assessment Study be undertaken to provide baseline information upon which subsequent environmental control audit shall be based.* The EMCA, Cap 387 requires that during the EIA process, a proponent shall in consultation with the Authority seek views of persons who may be affected by the project or activity through posters, newspaper, radio and public meetings with the affected parties and communities.

This Report complies with the requirements of the Environmental Regulations in the coverage of environmental issues, project details, impacts, legislation, mitigation measures, management plans and procedures.

5.4.1.2 Environmental Management and Coordination (Water Quality) Regulations, 2024

Water Quality Regulations apply to water used for domestic, industrial, agricultural, and recreational purposes; water used for fisheries and wildlife purposes, and water used for any other purposes. Different standards apply to different modes of usage. These regulations provide for the protection of lakes, rivers, streams, springs, wells and other water sources. The effective enforcement of the water quality regulations will lead to a marked reduction of water-borne diseases and hence a reduction in the health budget.

The regulations also provide guidelines and standards for the discharge of poisons, toxins, noxious, radioactive waste or other pollutants into the aquatic environment in line with the Third Schedule of the regulations. The regulations have standards for discharge of effluent into the sewer and aquatic environment. While it is the responsibility of the sewerage service providers to regulate discharges into sewer lines based on the given specifications, NEMA regulates the discharge of all effluent into the aquatic environment.

Everyone including the proposed project proponent is required to refrain from any actions, which directly or indirectly cause pollution to the stream bordering the project site to the eastern side, whether or not the water resource was polluted before the enactment of the Environmental Management and Coordination Act (EMCA) Gazetted in Cap 387.

Every person who generates and discharges effluent into the environment under a license issued under the Act shall carry out effluent discharge quality and quantity monitoring in accordance with methods and procedures of sampling and analysis prescribed by the Authority and shall submit quarterly records of such monitoring to the Authority or its designated representative.

5.4.1.3 Environmental Management and Coordination (Waste Management) Regulations, 2024

The Waste Management Regulations are established in accordance to section 174 of the EMCA, Cap 387. Waste management includes activities, both administrative and operational that are used in handling, packaging, treating, conditioning, reducing recycling, re-using, storage and disposal of waste.

These regulations stipulate how the different types of waste streams should be stored, transported, and disposed of. The type of waste streams described herein include solid waste, industrial waste, hazardous waste, pesticides and toxic substances, biomedical waste and radioactive substances. Cleaner production principles are championed under Regulation 6(1) which obligates owners of premises or facilities generating waste to minimize the amounts generated through adoption of best practices such as conservation of raw materials and energy, reduction in toxic emissions and waste, avoidance of using toxic raw materials and adoption of recycling and re-use strategies. The regulations also stipulate the conditions for licensing any person dealing with the transport or waste disposal.

The second schedule of the regulations has provided a National Waste Colour code i.e. Green for Organic Waste, Black for General Waste and Blue for Recyclable Waste. The Proponent shall comply to the Colour coding of the waste storage bins.

The proponent and contractor will put all measures in place to ensure all waste generated is collected and handled appropriately by a NEMA licensed waste handler and disposed of at a designated waste disposal site and in accordance with the national and county waste management regulations.

The proponent will be required to keep a record of data on the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, reused, recycled, recovered or disposed of;

5.4.1.4 Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009

Regulations 3 (1) prohibits any person from making or causing any loud, unreasonable, unnecessary or unusual noise that annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. On the other hand, Regulation 4(1) outlaws excessive vibrations and imposes a limit on the maximum permissible vibration levels as 0.5 centimeters per second of a source property boundary or 30 meters from any moving source. It also stipulates the factors to be considered when determining the amount of noise produced from various sources. The regulations further provide the permissible noise levels within different neighborhoods at different times. For a typical construction project, Regulation 14(1) gives powers to the Authority to impose requirements on how the work is to be carried out, machinery that may be used and permitted noise levels. In determining whether noise is loud, unreasonable, unnecessary or unusual, the following factors may be considered:

- Time of the day;
- Proximity to residential area;
- Whether the noise is recurrent, intermittent or constant;
- The level and intensity of the noise;
- Whether the noise has been enhanced in level or range by any type of electronic or mechanical means; and,
- Whether the noise is subject to be controlled without unreasonable effort or expense to the person making the noise.

Machinery and equipment used during the construction phase will be the main source of noise pollution.

Table 5-1 Maximum Permissible Noise levels for Construction sites

Maximum Permissible levels for Construction sites (Measurements taken within the facility)			
	Facility	*Day*	*Night*
	Health facilities, educational Institutions, Homes for the disabled and residential areas	*60 dB*	*35 dB*
	Other areas	*75 dB*	*65 dB*
	Day: 6.01am to 6.00pm	***Night: 6.01pm to 6.00am***	

During the construction phase, machinery and equipment used will be the main sources of noise pollution. The proponent and contractor are required to implement the mitigation measures provided in the ESMP of this IESIA report to ensure noise reduction. In addition, the proponent and contractor shall be required to adhere to the provisions of maximum permissible noise levels for construction sites.

5.4.1.5 Environmental Management and Coordination (Air Quality) Regulations, 2024

These regulations provide for the prevention, control and abatement of air pollution to ensure clean and healthy ambient air. It applies to all internal combustion engines, all premises, places, processes, operations, or works to which the provisions of the Act and Regulations made thereunder apply, and any other appliance or activity that the Cabinet Secretary may by order in the Gazette, specify. Specifically, air pollution within the occupational areas is highlighted in under Regulation 17 which requires owners of controlled facilities to ensure that occupational air pollutants workers are exposed to are monitored and recorded accordingly. Release of particulate matter during construction activities not in excess of the permissible limits is addressed under Regulation 33 of these regulations. They stipulate the measures to prevent air pollution from both stationary and mobile phases. They also provide for the permissible occupational exposure limits.

The emissions generated from construction activities have the potential of polluting the immediate atmospheric environment. Earthworks and bulk delivery of construction material, if poorly managed may result in generation of dust.

The proponent should comply with the mitigation measures proposed in this IESIA study report and endeavour to conduct ambient air quality monitoring as guided by these regulations during the construction, operational and decommissioning phases of the Project. Air quality monitoring will be guided by the standards stipulated thereof.

5.4.1.6 Environmental Management and Coordination of Controlled Substances Regulations, 2007 (Legal Notice No.73 of 2007)

The Controlled Substances Regulations define controlled substances and guides on how to handle them. This regulation mandates NEMA to monitor the activities of persons handling controlled substances, in consultation with relevant line ministries and departments, to ensure compliance with the set requirements. The regulations stipulate that controlled substances must be clearly labeled. E.g., "Controlled Substance-Not ozone friendly'' to indicate that the substance or product is harmful to the ozone layer. Advertisement of such substances must carry the words, "Warning: Contains chemical materials or substances that deplete or have the potential to deplete the ozone layer." Producers and/or importers of controlled substances are required to include a Material Safety Data Sheet (MSDS).

Persons are prohibited from storing, distributing, transporting or otherwise handling a controlled substance unless the controlled substance is accompanied by a material safety data sheet. Manufacturers, exporters or importers of controlled substances must be licensed by NEMA. Further, any person wishing to dispose of a controlled substance must be authorized by NEMA. The licensee should ensure that the controlled substance is disposed of in an environmentally sound manner. These regulations also apply to any person transporting such controlled substances through Kenya. Such a person is required to obtain a Prior Informed Consent (PIC) permit from NEMA.

The proponent and contractor should ensure adherence to the provisions of this regulation during the project's life cycle. The proposed project will use coolants and refrigerants during the operation phase, therefore it is imperative that the proponent ensures that the appropriate ones are adopted.

5.4.2 Sustainable Waste Management Act, 2022

The objectives of the Act are but not limited to: Promotion of sustainable waste management; promotion of effective delivery of waste services; improvement of the health of all Kenyans by ensuring a clean and healthy environment; reduction of air, land, fresh water and marine pollution; and the creation of an enabling environment for employment in the green economy in waste management, recycling and recovery.

The proponent shall comply to this Act throughout its three major phases by carrying out frequent monitoring and auditing of the waste management infrastructure; enhancing waste mapping, segregation, collection and transportation; contracting a NEMA registered waste handler to handle all waste generated from the site and it's surrounding; and implementing measures set out in the ESMP and EMP of this report. Waste management plans (WMPs) shall be prepared in accordance with this Act to guide waste management throughout the Project lifecycle.

5.4.3 Occupational Safety and Health Act (OSHA, 2007)

Occupational Safety and Health Act applies to all workplaces where any person is at work, whether temporarily or permanently. The purpose of the Act is to secure the safety, health and welfare of persons at work and protect persons other than persons at work against risks to safety and health arising out of the activities. Section 6(1) obligates the occupier or employer to ensure that the safety, health and welfare of all the people at work within the work premises are secured and maintained. Workers also have their part to play by taking all the necessary precautions to ensure their own safety and health and that of other people in their workplace or within the environs of their workplaces. The Act protects workers by requiring the use of appropriate safe systems of work, preventive and control measures and full utilization of Personal Protective Equipment and clothing.

Section 19 of the Act provides that an occupier of any premises likely to emit poisonous, harmful, injurious or offensive substances, into the atmosphere shall use the best practicable means to prevent such emissions into the atmosphere and render harmless and inoffensive the substances which may be emitted. Ergonomics aspects of the workplace environment are covered under section 76(1) while section 81 (1) highlights the relevant housekeeping rules of the workplace setup. The employer or occupier is expected to develop a suitable area for the safe collection, recycling and disposal of chemical wastes, obsolete chemicals and empty containers of chemicals to eliminate risks to the safety and health of employees and the environment.

The OSHA stipulates that an employer shall not require or permit his employee to engage in the manual handling or transportation of a load which by reason of its nature is likely to cause the employee to suffer bodily injury.

It also states that any person supplying, distributing, conveying or holding in chemicals or other toxic substances shall ensure that they are packaged, conveyed, handled and distributed in a safe manner so as not to cause any ill effect to any person or the immediate environment.

Part VII of the Occupational Safety and Health Act (OSHA), 2007, elaborately deals with machinery safety requirements, mainly from the point of view of avoiding accidents and injuries at work.

Under the provisions of this Act, the following should be carried out in all phases of the project;

i) Registration of the site as a workplace with the Directorate of Occupational Safety and Health Services (DOSHS)
ii) Annual statutory Occupational Safety and Health Audit and risk assessment
iii) Annual fire safety audit
iv) Statutory examination of plant and equipment
v) Statutory safety training
vi) Conducting fire drills at least once in annually
vii) Provision and use of appropriate PPE
viii) Provision and maintenance of welfare facilities

There will be a need to ensure that all employees and people around the area are protected against any risks that could arise from the operations, hence the provisions of this Act will be fully incorporated and adhered to. All plants shall be subjected to periodical examination as provided by law.

5.4.3.1 Occupational Safety and Health (First Aid in the Workplace) Regulations, 2024(L.N No. 79)

The First Aid in the Workplace Regulations, 2024 were developed under the Occupational Safety and Health Act (OSHA), 2007, and provide mandatory requirements for the establishment and maintenance of first aid arrangements at workplaces. The regulations outline employer obligations in relation to:

- *Provision of appropriate first aid facilities and services;*
- *Availability of trained first aid personnel;*
- *First aid kits and supplies corresponding to risk levels;*
- *Procedures for reporting and responding to workplace injuries*.

The project proponent will comply with these regulations by establishing well-equipped first aid stations at the v=construction site. A minimum number of workers per site will be trained and certified in basic first aid by a Directorate of Occupational Safety and Health Services (DOSHS)-approved institution. A first aid register will be maintained. Regular audits of the first aid system will be conducted to ensure replenishing supplies and updating training.

5.4.3.2 Occupational Safety and Health (Registration of Workplace Premises) Regulations, 2022. (L.N No. 51)

The Registration of Workplace Premises Regulations, 2022, issued under the OSHA, 2007, require that all workplaces be formally registered with the Directorate of Occupational Safety and Health Services (DOSHS) before any industrial, commercial, or service activity is undertaken. The regulations aim to ensure that all workplaces meet minimum health and safety standards prior to occupation or use. The key provisions include:

- *Mandatory application for registration prior to occupancy;*
- *Submission of layout plans and workplace details;*
- *Renewal of registration every 12 months;*
- *Display of the Certificate of Registration at a prominent location within the premises.*

The proponent will apply for workplace registration of the construction site before commissioning. Copies of site layout plans and supporting documentation will be submitted to DOSHS as required. Certificates of Registration will be visibly displayed at entrances to all

registered workplaces. The proponent will ensure timely renewal of registrations and address any compliance recommendations issued during inspections.

5.4.4 Employment Amendment Act of 2022

This Act establishes the minimum terms and conditions of employment. The Act sets forth the relationship between an employer and a worker. It defines the benefits, duties and obligations of the employer and the worker, which includes contract of service, prohibition against forced labour, discrimination in employment, sexual harassment, payment of wages, leave, termination, and living amenities.

The Act requires written contracts for jobs longer than three months (Section 9–10), outlining terms like wages, working hours, and duties. Wages must be paid in legal tender and on time, with no unauthorized deductions (Sections 17–20). Employees are entitled to equal pay for equal work (Section 5(5)). (Section 27) and provides for 21 days of annual leave (Section 28), 90 days maternity and 2 weeks paternity leave (Section 29).

Termination must be fair and follow due process (Sections 35–46), with notice or pay in lieu. Redundancy requires proper notice and severance pay (Section 40). Child labor is restricted, with strict limits on work by persons under 18 (Sections 56–61). Disputes are handled by the Employment and Labour Relations Court (Sections 87–90), and employers must keep records for at least five years (Section 74). Penalties apply for violations of the Act.

During the construction phase of the project, the contractor will engage a combination of full-time and casual workers to support various project activities. In line with national labor laws and international labor standards, the contractor shall be required to strictly observe the prevailing basic minimum conditions of employment, as provided under the Employment Act, 2022 to prevent Child labour. The Contractor shall pay the entire amount of the wages earned by or payable to the workers. Payment of such wages should be done at the end of a working day at or near the place of work.

5.4.5 The Energy Act of 2019

The Energy Act 2019 was approved on 12th March 2019 and commenced on 28th March 2019. The Act establishes an Energy and Petroleum Regulatory Authority mandated to regulate the generation, importation, exportation, transmission, distribution, supply and use of electrical energy except for licensing of nuclear facilities; ensure, in collaboration with the Kenya Bureau of Standards, that only energy efficient and cost-effective appliances and equipment are imported into the country; certify energy managers and license energy auditors among other duties. The Act gives provisions for the need to protect the health and safety of users of energy by providing an enabling environment of operation that protects the health and safety of users of the service for which the license or permit is required and other members of the public affected by the undertaking. Section 107(1) of the Act also provides that for energy producing facilities, a Strategic Environment Assessment and Social Impact Assessment will be undertaken among other requirements, before commencement of construction activities.

The provisions of this Act have and will be enforced by the management in consultation with the Environmental experts, planners, mechanical and electrical consultants in ensuring that best practices are adopted for sustainable energy use while attaining public health and safety.

5.4.6 Land Act, 2012 and Land Laws (Amendment) Act, 2016

This is an Act of Parliament that revises, consolidates and rationalizes the registration of titles to land, to give effect to the principles and objects of devolved government in land registration, and for connected purposes. The act requires proper marking and maintenance of boundaries. With regard to the maintenance of boundaries, the Act requires every proprietor of land to maintain in good order the fences, hedges, stones, pillars, beacons, walls and other features that demarcate the boundaries, pursuant to the requirements of any written law.

The land on which the proposed project will be undertaken is owned by the proponent and the proof of ownership has been provided as an Annex to this report. The proponent has adhered to the provisions of this act by ensuring the project land boundaries are marked and development will only be undertaken within the boundaries owned by the proponent.

5.4.7 Penal Code Act (Cap.63)

This Act stipulates the various activities and conduct that are considered to be unlawful or criminal in nature, and the penalties as provided for by the Act. According to section 191, any person who voluntarily corrupts or fouls the water of any public spring or reservoir, so as to render it less fit for the purpose for which it is ordinarily used, is guilty of a misdemeanor. Section 192 also stipulates that any person who voluntarily vitiates the atmosphere in any place, so as to make it noxious to the health of persons in general dwelling or carrying on business in the neighborhood or passing along a public way, is guilty of a misdemeanor.

The contractor and proponent should ensure strict adherence to the measures provided in the ESMP throughout the project cycle in order to mitigate any possible negative impact associated with air pollution, noise, solid waste generation and effluent discharge.

5.4.8 Physical and Land Use Planning Act, 2019;

This Physical and Land Use Planning Act, 2019 makes provision for the planning, use, regulation and development of land and connected purposes. Article 5 of the Act under Principles and norms of physical and land use planning, notes that every person engaged in physical and land use planning development activities shall be in a manner that integrates economic, social and environmental needs of present and future generations. Article 4 notes that major developments should be subjected to environmental and social impact assessment.

The proponent and contractors of the proposed development should ensure compliance with the provisions of the act and land use planning. Public participation has been conducted to ensure the involvement of stakeholders in the planning process.

5.4.8.1 The Physical and Land Use Planning (Local Physical and Land Use Development Plan) Regulations, 2021

The Physical and Land Use Planning (Local Physical and Land Use Development Plan) Regulations, 2021, established under the Physical and Land Use Planning Act, 2019, provide the statutory framework for the preparation, approval, and implementation of local physical and land use development plans at county and urban levels. These regulations are highly relevant to the proposed office development in the following respects.

The project must be aligned with existing or proposed local physical and land use development plans, particularly those developed by Nairobi City County. *The proponent will seek all the approvals in as required by the regulations.*

5.4.9 The Special Economic Zones Act, 2015 (Cap 517A)

The Special Economic Zones (SEZ) Act serves as the foundational legal framework for the establishment, promotion, and regulation of Special Economic Zones across the country. Its primary objective is to foster economic growth by creating an attractive environment for both domestic and foreign direct investments.

The SEZ Act is highly relevant as it explicitly provides for the creation of an enabling environment for such investments. The legislation establishes the Special Economic Zones Authority (SEZA) to regulate and oversee these zones, streamline licensing processes, and offer a suite of attractive incentives to developers, operators, and enterprises, including preferential tax regimes, customs duty exemptions, and administrative facilitations.

5.4.9.1 The Special Economic Zones Regulations, 2016

These regulations provide the detailed operational framework for the development and management of SEZs in Kenya. These regulations are critical for guiding developments within such zones, particularly through their emphasis on environmental sustainability and public health.

Part IX of the Regulations, specifically sections 41 to 49, outlines stringent provisions concerning environmental and public health management within SEZs. Section 41, for instance, prohibits activities that lead to the emission of substances beyond specified thresholds into water, air, or land, or generate noise exceeding prescribed decibel limits. This mandates that any SEZ development must incorporate advanced pollution control measures and adhere to strict emission standards to prevent environmental degradation. Furthermore, the Regulations stipulate that SEZA, in consultation with NEMA, is responsible for establishing environmental quality standards and maximum pollutant load capacities for specific SEZ project sites, as outlined in section 43. This ensures that environmental considerations are integrated from the initial planning stages of any development.

Sections 44 to 49 detail requirements for EIAs, environmental audits, waste management, and public health safeguards, ensuring that developments within SEZs are not only economically viable but also environmentally sound and protective of human well-being. The overarching intent of these regulations is to foster sustainable development by ensuring that all developments within SEZs operate in an ecologically responsible manner and do not compromise public health. *The project design has already integrated sustainability features in the building design. The proponent shall ensure all project activities comply to the requirements of the regulation.*

5.4.10 Water (Amendment) Act (No. 13 of 2024)

The Water (Amendment) Act, 2024 is a critical piece of legislation enacted to enhance the regulation, management, protection, and sustainable development of Kenya's water resources and sewerage services. This Act reinforces the framework for water governance and aligns water sector management with principles of environmental conservation, public health, and sustainable development. A central feature of the Act is the establishment of the Water Resources Authority (WRA), a statutory body mandated to regulate the use and management of water resources across the country. The Authority is responsible for issuing water permits, monitoring water use compliance, protecting catchment areas, and enforcing pollution control measures. The Act explicitly prohibits a range of activities that may harm water resources. These include:

- Obstruction, interference with, or diversion of any watercourse or water resource without lawful authority;

- Disposal or discharge of any form of waste including rubbish, effluent, trade waste, or any offensive matter into or near a water resource in a manner that causes or is likely to cause pollution;
- Unauthorized use of water resources or construction of infrastructure is likely to alter natural water flows without necessary approvals from WRA.

Relevance: The proponent should:

- *Ensure no unauthorized discharges of construction-related waste, chemicals, or runoff enter River Gichii;*
- *Secure the necessary permits and approvals from WRA before undertaking any works that affect the river's flow or involve abstraction or diversion;*
- *Implementing best practices in erosion control, stormwater management, and sediment containment to prevent downstream pollution;*
- *Designing and operating sewer and wastewater infrastructure in a manner that aligns with water quality standards and catchment protection goals.*
- *Designing and operating sewer and wastewater infrastructure in a manner that aligns with water quality standards and catchment protection goals.*

5.4.10.1 The (Water Resources) regulations 2025

These regulations aim to enhance public access to water and sanitation, promote sustainable and commercially viable service provision, and ensure responsible management and conservation of water resources through permitting, monitoring, and governance frameworks. The regulations:

- Provides a framework for the management and use of water resources in Kenya.
- Establishes rules for water use activities, including permits and authorizations.
- Covers aspects like surface and groundwater management, water quality monitoring, and conservation efforts.
- Aims to ensure sustainable water resource management and compliance with environmental standards.

Section 91 of the regulations state that unless otherwise determined by an inspector, the riparian reserve on each side of a watercourse is defined as a minimum of ten metres or equal to the full width of the watercourse up to a maximum of thirty metres on either side of the bank. *The Water Resources Authority conducted pegging of the Gichii stream that dissects the Two Rivers development and is located on Eastern side of the proposed project site. The marked riparian land ranged from 8.5 Metres to 10 Metres from the stream. The proposed project design has maintained the riparian reserve. The contractor and proponent shall ensure that the project activities do not cause any pollution to the riparian reserve.*

5.4.11 The Environment and Land Court Act, 2011

This Act is in place to give effect to Article 162(2) (b) of the Constitution; to establish a superior court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land, and to make provision for its jurisdiction functions and powers, and connected purposes.

This Act shall be of great essence to the proponent, public, interested or affected party that may want to litigate against the development on settlement issues, location of the project or even effects of the project to the public.

5.4.12 Work Injury Compensation Benefit Act (WIBA), 2007

This is an Act of Parliament to provide compensation to employees for work-related injuries and diseases contracted in the course of their employment and for connected purposes. The Act applies to all employees, including employees employed by the Government, other than the armed forces, in the same way and to the same extent as if the Government were a private employer. It is the duty of all employers to obtain and maintain an insurance policy from an approved insurer in respect of any liability the employer may incur as provided for by the Act. The Act also stipulates that an employee who suffers an accident that leads to disablement or death is subject to the provisions of this Act and is entitled to compensation.

It will be important for the Contractor of the proposed project to ensure that all workers contracted during the project implementation phase are provided with appropriate insurance covers so that they can be compensated in case they get injured while working.

5.4.13 Public Roads and Roads of Access Act Cap 399, Rev. 2012

The Public Roads and Roads of Access Act Cap.399 Act states that a public road is any road which the public has a right to use immediately before the commencement of this Act, or all proclaimed or reserved roads and thoroughfares being or existing on any land sold or leased or otherwise held under the East Africa Land Regulations, 1897, the Crown Lands Ordinance,1902, or the Government Lands Act at any time before the commencement of this Act and all roads and thoroughfares hereafter reserved for public use.

The proponent will observe the requirements of this act while carrying out their operations.

5.4.14 Public Health Act (Cap. 242)

This is an Act of Parliament that makes provision for securing and maintaining the health of individuals and the public in general. Section 115 of the Act states that no person shall cause nuisance or cause to exist on any land or premises any condition liable to be injurious or dangerous to human health. Section 116 requires that Local Governments take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent the occurrence of nuisance or condition liable to be injurious or dangerous to human health. Section 130 further empowers the Cabinet Secretary to delegate functions to County Governments to enforce rule in respect of define areas to prohibit or regulate erection of dwellings, sanitary convenience, tanks or other works to entail risk of harmful pollution or pollution threatening to sources of water being used by the public.

Such nuisance or conditions are defined under section 118 as waste pipes, sewers, drainers or refuse pits in such state, situated or constructed as in the opinion of the medical officer of health to be offensive or injurious to health. Any noxious matter or wastewater flowing or discharged from any premises into the public street or into the gutter or side channel or watercourse, irrigation channel, or bed not approved for discharge is also deemed as a nuisance. Other nuisances are an accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbor rats or other vermin.

Part XII, Section 136, states that all collections of water, sewage, rubbish, refuse and other fluids which permit or facilitate the breeding or multiplication of pests shall be deemed nuisances under this Act. This part seeks to guard against the breeding of mosquitoes which is key as they cause malaria which is one of the major causes of death in the country.

The proponent will observe all the provisions of this Act.

5.4.15 Urban Areas and Cities Act No. 13 of 2019

This is an Act of Parliament to give effect to Article 184 of the Constitution, to provide for the classification, governance and management of urban areas and cities and to provide for the criteria of establishing urban areas. According to section 5 of the Act, an urban area only qualifies for the status of a city if it possesses infrastructural facilities such as good roads, street lights, markets, fire stations, regional infrastructural connectivity and adequate capacity for disaster management. The Act also provides for the principle of governance and participation of residents of towns and cities. Under the Act a town is an urban area with a population of at least ten thousand residents. Also, under the Act the management of a city and municipality is vested in the county governments. The County Governments may impose such fees, levies and charges for the delivery of services by the municipality or the city county. The Act under section 44, provides for collaboration between the County Governments and all relevant stakeholders in provision of infrastructural services including environmental conservation, construction of roads, health facilities and promotion of tourism among others.

The proponent shall ensure compliance with the act by ensuring all fees and levies payable to Nairobi City County are paid and necessary approvals are obtained.

5.4.16 The Climate Change (Amendment) Act, 2023

On September 1st, 2023, against the backdrop of Kenya hosting the Africa Climate Summit and Africa Climate Week, the Climate Change (Amendment) Act, 2023, ("the Act") was assented to by the President. The Act came into force on 15th September 2023, and builds upon the foundations laid by the Climate Change Act, 2016, in pushing Kenya a step forward towards realizing its obligations under the Paris Agreement. The Act has brought with it a wide array of changes, particularly in relation to effecting Article 6 of the Paris Agreement by introducing provisions on the regulation of and participation in carbon markets.

In an effort to boost accountability and transparency, the Act provides for the establishment of a carbon registry that would be accessible to the public with registers on information relating to carbon credit projects and the amount of carbon credits issued or transferred from Kenya. The carbon registry will boost climate financing activities in the country by reassuring investors in carbon markets. A Designated National Authority as established by the Act will be the custodian of the Registry.

Whilst the importance of climate financing cannot be overemphasized, it is equally important to safeguard the environment from further degradation. In this regard, the Act requires that before commencing a carbon trading project, an environmental impact assessment must be carried out in compliance with international obligations. The Act also entrenches the need for carbon projects to specify the anticipated environmental, economic or social benefits which includes the extent to which the project will contribute to the removal of greenhouse gases from the atmosphere in order to contribute to meeting Kenya's greenhouse gas emissions targets.

The proposed project should therefore ensure that infrastructure design is climate-proof over its lifespan and undertaken as per provisions of the act specifically on planning and implementation stages. The proponent has obtained EDGE Certification for the proposed project designs which have integrated sustainability elements.

5.4.17 National Building Code, 2024

The National Building Code 2024 in Kenya provides a comprehensive framework for building design, construction, and safety, aiming to ensure buildings are safe, sustainable, and environmentally responsible. The Code outlines requirements for structural integrity, safety measures, and accessibility, including guidelines for building materials, fire protection, and electrical safety. It promotes environmental sustainability by encouraging energy and water-efficient building practices. The Code also aligns with urban planning and zoning regulations to ensure buildings are constructed in appropriate areas, supporting overall urban development goals. Furthermore, it emphasizes inclusivity by setting standards for accessibility, and it promotes health and well-being by addressing factors such as ventilation, natural lighting, sanitation, and waste management.

The proponent should ensure that all aspects of the building project, including design, construction, and safety, adhere to the standards set out in the Code. This involves ensuring structural integrity, implementing fire and electrical safety measures, incorporating energy-efficient and sustainable practices, and ensuring the building is accessible to all, including people with disabilities.

5.4.18 The Traffic Act Cap 403

The Traffic Act, of 2012 gives provisions and guidelines that govern the Kenya roads transport sector. These guidelines are essential to private, public and commercial service vehicles in ensuring safety and sanity on the roads hence ensuring the environment is safeguarded. In section 41, the Act demands for installation and certification of speed governors for the commercial vehicles ferrying goods adjusted to the loading condition of such vehicles to a limit of 80 KPH. Moreover, the owner of commercial vehicles or trailers shall ensure clear markings on their vehicles in English language on the right side of the vehicle showing ownership details, as well as tare weight of the vehicle and maximum authorized weight. Section 26 and 27 of the same discourages engines that emit exhaust gases into the atmosphere without passing via a silencer or expansion chamber. In ensuring safety of all the persons in transit, section 56 encourages that every public and commercial vehicle be fitted with inspected and first-class first aid box and fire extinguisher. In ensuring compliance to this Act, the contractor and developer shall ensure that all site drivers and all material suppliers to the site satisfy the provisions as stipulated in the Act.

In ensuring compliance to this Act, the contractor and developer shall ensure that all site drivers and all material suppliers to the site satisfy the provisions as stipulated in the Act.

5.4.19 The Standards Act Cap 496

The Act is meant to promote the standardization of the specification of commodities, and to provide for the standardization of commodities and codes of practice; to establish a Kenya Bureau of Standards, to define its functions and provide for its management and control. Code of practice is interpreted in the Act as a set of rules relating to the methods to be applied or the procedure to be adopted in connection with the construction, installation, testing, sampling, operation or use of any article, apparatus, instrument, device or process. KEBS is mandated, according to section 10(7) (a) and (b) of the Act, to issue standardization marks to commodities.

The proponent, contractor and project engineer will enforce the overall safety of the development, by ensuring strict vetting of material to ensure that only construction materials that meet the acceptable quality of standards and which are labeled with a standardization mark are used for construction. Thorough scrutiny of these materials and frequent monitoring will also be assisted by the construction supervisory staff on site such as Resident Engineers.

5.4.20 National Gender and Equality Act, 2011

National Gender Equality Commission is a constitutional Commission established by an Act of Parliament in August 2011, as a successor commission to the Kenya National Human Rights and Equality Commission pursuant to Article 59 of the Constitution. NGEC derives its mandate from Articles 27, 43, and Chapter Fifteen of the Constitution; and section 8 of NGEC Act (Cap. 15) of 2011, with the objectives of promoting gender equality and freedom from discrimination.

Gender mainstreaming in developments ensures that the concerns of women and men form an integral dimension of the design, implementation, operation and monitoring and evaluation ensures that women and men benefit equally and that inequality is not perpetuated.

Gender considerations should be made in every stage of the development by the proponent.

5.4.21 Persons with Disabilities Act, 2003

The Act guarantees that: No person shall deny a person with a disability access to opportunities for suitable employment; a qualified employee with a disability shall be subject to the same terms and conditions of employment and the same compensation, privileges, benefits, fringe benefits, incentives or allowances as qualified able-bodied employees; and an employee with a disability shall be entitled to exemption from tax on all income accruing from his employment.

The proponent will ensure compliance with the provisions of this Act by ensuring there is no discrimination on physical disability while recruiting for jobs and consider employment opportunities for PWDs in the office tower. The Project design has ensured provision of accessible facilities (i.e Washrooms and provision of a lift).

5.4.22 County Governments Act, 2012 and its Amendment Act of 2020

The Act emphasizes on the need for a consultative and participatory approach where the principles of planning and development facilitation in a county serve as a basis for engagement between the county government, citizens and other stakeholders. In addition to principles of planning, the Act provides that a planning framework integrates economic, physical, social, environmental and spatial planning as per section of 104(1) of the Act. Section 115(1b) of the Act provides that public participation in the county planning processes should be mandatory and be facilitated through provision to the public of clear and unambiguous information on any matter under consideration in the planning process, including; comprehensive environmental impact assessment reports; expected development outcomes; and development options and their cost implications.

The proponent has already complied by engaging Nairobi City County in obtaining the change of use permit for the proposed project site. Further, the proponent should continuously engage Nairobi County in its planning to ensure necessary licenses and permits are acquired.

5.4.23 Nairobi City County Public Nuisance Act, 2021

The objective of this Act is to provide for the control of public nuisance and empower the county to take all lawful, necessary and reasonably practicable measures for: The maintenance of the county, at all times in a clean and sanitary condition; abatement and prevention of public nuisances; remedying or causing to be remedied any nuisance or condition liable to be injurious or dangerous to health or which has been declared to be a public nuisance under the Act.

Section 16 provides that any person who sells food that has in or upon it any poisonous or harmful substances; is unwholesome or unfit for human consumption; consists in part or in whole of any

filthy, putrid, disgusting, rotten, decomposed or diseased substance of foreign matter; or food that is adulterated, shall be guilty of an offence.

Section 20(2) stipulates that a person who in connection with building operations, demolitions or road construction or reconstruction works causes or allows noise to be made which is so loud and continuous as to constitute a nuisance to the occupants of any premises in the neighborhood, commits an offence.

Section 21(1) of the Act states that any person who discharges any dangerous materials, substance, oil or oil mixtures into land, water, air or aquatic environment; or discharges any pollutant into the environment contrary to the provisions of this Act, commits an offence.

The proponent will ensure compliance to the act in the proposed project by implementing its provisions and those provided in the ESMP of this report.

5.4.24 The National Construction Authority Act, 2011

The purpose of the Act is to provide for the establishment, powers and functions of the National Construction Authority and connected purposes (Section 1).

The National Construction Authority oversees the construction industry and coordinates its development (section 5(1)) and is given power for necessary performance (section 6(1)). It also sets out application requirements and procedures for the registration of persons and firms as construction contractors (Section 17) and punitive measures for contravening by individuals (Section 15(3)). Additionally, the Act gives the Board power to inquire into the conduct of a contractor on its initiatives (Section 22) and sets out suspension conditions for contractors (Section 23).

Furthermore, the Act stipulates the establishment of an Appeals Board and its function to make rules for or concerning the filing, hearing and disposal of appeals etc. (Sections 27 and 28) Finally, Sections 30 and 31 provides for the constituent of the Authority's funds and concerns regarding imposition of levy, which contributes importantly to the income of the Authority.

The proponent will adhere to the requirements of this act and obtain all necessary approvals during the construction period.

5.5 National 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), and Water Resources Authority (WRA) among others. There are also local and international NGOs involved in environmental issues in the country. From the above institutions, NEMA plays the regulatory and oversight role in the management of environment in Kenya.

5.5.1 Ministry of Water, Sanitation and Irrigation.

In 2013, the government, in line with the Constitution, rationalized the portfolio, responsibilities and functions of all the ministries and other government agencies. Consequently, the Ministries of Environment and Mineral Resources, Forestry and Wildlife, Water and Irrigation and Regional Development were merged to form the Ministry of Environment, Water and Natural Resources (MEWNR). In April 2015 MEWNR was again split to form the current Ministry of water and irrigation, giving recognition to the crucial role played by the irrigation sub-sector in national

development. This was further split towards the realization of water security to promote sustainable development in line with the Big Four agenda leading to formation of Ministry of Water and Sanitation.

The State department for water and sanitation performs the following functions:

- Water Resources Management Policy and Standards
- Water Catchment Area Conservation, Control and Protection;
- Water and Sewerage Services Management Policy;
- Waste Water Treatment and Disposal Policy;
- Water Quality and Pollution Control;
- Sanitation Management.

5.5.1.1 Water Resources Authority (WRA)

It is a state corporation established under Section 11 of the Water Act, 2016. Pursuant to Section 6 of the Act, the Authority is an Agent of the National Government responsible for regulating the management and use of water resources. The Water Act, 2016 makes extensive provisions on the Authority's role in regulating the use and management of water resources. Some of the issues that WRA is responsible for include: Water allocation, source protection and conservation, water quality management and pollution control and international waters. Its roles and responsibilities include but not limited to: Planning, management, protection and conservation of water resources; Regulation of conservation and abstraction structures; and Catchment's and water quality management.

The Water Resources Authority has conducted pegging for River Gichii. The certificate is attached as Annex 17.

5.5.1.2 Nairobi City Water and Sewerage Company (NCWSC)

The Company is mandated to provide clean water and sewerage services to the residents of Nairobi City County, in a financially sustainable manner and within Government regulations. As the mandated water and sewerage service provider in Nairobi City County, NCWSC has continued to enhance service provision by aligning itself to the Constitution of Kenya 2010; National Water Master Plan 2030, identifying key multi-sector initiatives and projects to ensure sustainable availability and management of water and sanitation for all; Kenyan economic blueprint, Vision 2030's under MTP IV; Nairobi Integrated Urban Development Master plan (NIUPLAN); the County's Strategic Plan (2015-2025); Nairobi County Integrated Development Plan for (2023-2027); and the Sustainable Development Goals (SDGs) under agenda six.

NCWSC shall ensure the provision of water and sewerage services to the proposed development and make sure that the disposal of wastewater from the proposed project meet statutory requirements to protect against any form of environmental pollution.

5.5.2 Ministry of Environment Climate Change and Forestry

The Ministry was established and mandated to undertake protection, conservation and development of the environment and natural resources to ensure sustainable development. Semi-Autonomous Government Agencies under the Ministry of Environment and Natural Resources include:

i. Kenya Water Towers Agency (KWTA)

ii. Kenya Forest Service (KFS)

iii. Kenya Forestry Research Institute (KEFRI)

iv. Kenya Wildlife Service (KWS)

5.5.3 Institutions under EMCA Cap 387

There are other institutional arrangements provided for within the EMCA Cap 387 and relevant to the development. The roles are reviewed and discussed in detail below:

5.5.3.1 National Environmental Management Authority (NEMA)

NEMA was established to exercise general supervision and coordination 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. The Director General appointed by the president heads NEMA. Any project that falls under the second schedule of EMCA, Cap 387 shall seek an Integrated Environmental Impact Assessment License from NEMA.

On World Earth Day 2024 (22nd April 2024), whose official theme was "Planet vs Plastic", the National Environment Management Authority (NEMA) announced a ban on the use of plastic garbage bags and bin liners. Kenyan citizens were given 90 days (about 3 months) to start using biodegradable alternatives. All organic waste generated by households, private sector and public sector institutions, religious institutions, private and public events shall strictly be segregated and placed in 100% biodegradable garbage bags/bin liners only.

This directive came into effect on 9th July 2024 and the project proponents are expected to adhere to it.

The Authority will review this IESIA report for the proposed project, visit the project site to verify information provided in the report and issue a license if it considers that all the issues relevant to proposed project have been identified and mitigation measures to manage them have been proposed

5.5.3.2 National Environmental Tribunal

The National Environment Tribunal (NET) created under Section 125 of EMCA Cap 387 has the following functions:

- To hear and determine appeals from NEMA's decisions and other actions relating to issuance, revocation or denial of (EIA) licenses or the amount of money to be paid under the Act and imposition of restoration orders;
- To give direction to NEMA on any matter of complex nature referred to it by the Director General; and

If the proponent disagrees with NEMA's decisions in exercising the above-mentioned functions, then they may lodge a case at the NET to seek to overturn the decision. Should this avenue not lead to a favorable ruling from the NET, an appeal may be lodged in the Environment and Land Court.

The tribunal will come in handy if the project's implementation parties are aggrieved by NEMA's decision or license conditions.

5.5.3.3 National Environment Complaints Committee (NECC)

It Investigates any allegations or complaints against any person or against the authority in relation to the condition of the environment in Kenya and on its own motion, any suspected case of environmental degradation and to make a report of its findings together with its recommendations thereon to the Cabinet Secretary.

This committee will act as a safeguard for members of the public who feel aggrieved by actions taken under the proposed project and can exercise their constitutional rights to launch a complaint should they have exhausted all other grievance redress mechanisms available to them.

5.5.3.4 National Environment Trust Fund (NETFUND)

The trust fund is vested in NEMA and is subject to EMCA Cap 387. A board of five trustees appointed by the Cabinet Secretary administers it. These funds may be received from donations, endowments, grants and gifts from whatever source or sums of money or from monies designated by NEMA for this fund.

The tribunal will come in handy if the project's implementation parties are aggrieved by NEMA's decision or license conditions.

5.5.3.5 County and Sub County Environment Committees

The County and Sub-County Environmental Committees contribute to decentralization of activities undertaken by NEMA. This has enabled local communities to have greater access to environmental management information. It has also enabled the County and Sub-County Environment Committees to conduct quick site visits and review of reports of proposed projects.

Since the proposed project is a high-risk project as per the second schedule (L.N. No. 31 of 2019) of EMCA Cap 387, the review of the report will be done at NEMA headquarters for issuance of an IESIA license. However, the report will be reviewed in Nairobi County to create awareness and obtain ownership at the county level.

5.5.4 Ministry of Labour and Social Protection

The mandate of the ministry is "formulation, review and implementation of employment, national human resource planning and development, national Labour productivity, Facilitating and Tracking Employment creation, Coordination of National employment, Internship and Volunteers for public service, community Development, Protection and advocacy of needs of Persons with Disabilities, and Workplace Inspection and Workman's Compensation.

a) The Labour Department

The Labour Department is the Ministry's focal point agency responsible for implementation of the three major Labour Laws; namely: The Employment Act, 2007 and it's Amendment of 2023; The Labour Institutions Act, 2007; and The Labour Relations Act, 2007.

b) Directorate of Occupational Safety and Health Services (DOSHS)

DOSHS is the designated national authority responsible for the collection and maintenance of databases with records of the analysis and investigations of occupational diseases and accidents, and dangerous occurrences. Some of the services include but are not limited to; registration of workplaces, registration of plants, registration of all approved persons and institutions, workplace inspections and audits, examination and testing of plants, accident investigation and WIBA processing.

DOSHS was a key stakeholder engaged during the planning process as they are responsible for the safety, health and welfare of all workers in all workplaces and in registration of all workplaces which are envisioned in the proposed project. The proponent should register the site as a workplace with DOSHS before implementation of the project.

5.5.5 National Construction Authority (NCA)

The National Construction Authority (NCA), constituted under Act No. 41 of 2011 laws of Kenya, is mandated to register contractors and to prepare a register of contractors and construction workers licensed to work in Kenya. National Construction Authority is the body mandated to register all contractors and companies carrying the following categories of work: building works; road works; waterworks; mechanical works in buildings; and electrical works.

The Authority is mandated to regulate the construction industry in Kenya as per the National Construction Act law of Kenya. It also approves the construction of buildings and related projects; construction works and general contractors in Kenya. For construction to be approved by NCA, they must be approved by other regulating bodies in Kenya such as NEMA and the County Government.

The proponent and contractor will ensure all necessary approvals required by the Authority are obtained.

5.5.6 Nairobi City County Government

Nairobi City County Government is charged with the responsibility of providing a variety of services to residents within its area of jurisdiction. These include the services that were hitherto provided by the defunct City Council and the ones that have been transferred from the National Government. The former includes: physical planning, public health, social services and housing, primary education infrastructure, inspectorate services, public works, environment management while the latter includes agriculture, livestock development and fisheries, trade, industrialization, corporate development, tourism and wildlife and public service management.

The proponent is required to work collaboratively with the institution by ensuring adherence to all Nairobi City County legislation/by-laws and continue engaging the County Government through its departments, in coordination of various project activities such as environmental conservation.

5.6 Multilateral Environmental Agreements / Treaties

Kenya has signed a number of international conventions and treaties on environment and natural resources also known as multi-lateral environmental agreements (MEAs) that obligate the country to promote sustainable environmental and natural resources management and social equity. Conventions are legally binding bilateral, regional or international agreements binding to the states that are parties thereto. Kenya has ratified some of the most important conventions on the environment as discussed below which apply to the proposed project hence the contractor is bound to comply by the respective provisions.

Table 5-2 Multilateral Environmental Agreements

Multilateral Environmental Agreements	Key areas of application

United Nations Framework Convention on Climate Change (UNFCC)	▪ UNFCCC has near universal membership and is the parent treaty of the 1997 Kyoto Protocol. The Kyoto Protocol has been ratified by 192 of the UNFCCC Parties. ▪ The ultimate objective of both treaties is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system. *The proposed project should ensure all activities and development plans are undertaken in line with the provisions of the Convention aimed at stabilizing greenhouse gas concentrations in the atmosphere.*
Vienna Convention for the Protection of the Ozone Layer	▪ The Vienna Convention for the Protection of the Ozone Layer was adopted in 1985 and entered into force on 22 Sep 1988. In 2009, the Vienna Convention became the first Convention of any kind to achieve universal ratification. ▪ The objectives of the Convention were for Parties to promote cooperation by means of systematic observations, research and information exchange on the effects of human activities on the ozone layer and to adopt legislative or administrative measures against activities likely to have adverse effects on the ozone layer.
Rio Declaration on Environment and Development	▪ The Rio Declaration on Environment and Development, often shortened to Rio Declaration, was a short document produced at the 1992 United Nations "Conference on Environment and Development" (UNCED), informally known as the Earth Summit. ▪ The declaration aimed at establishing a new and equitable global partnership through the creation of new levels of co-operation among States, key sectors of societies and people, working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system, recognizing the integral and interdependent nature of the Earth, our home. ▪ The Rio Declaration consisted of 27 principles intended to guide countries in future sustainable development. It was signed by over 170 countries. ▪ Principle 17 of the Rio Declaration provides key relevance to the proposed project. *The principle denotes that environmental impact assessment as a national instrument shall be undertaken for proposed activities that are likely to have a significant impact on the environment and are subject to a decision of a competent national authority.*
Earth Summit on Sustainable Development Agenda 21	▪ Agenda 21 is a non-binding, voluntarily implemented action plan of the United Nations regarding sustainable development. It is a product of the Earth Summit (UN Conference on Environment and Development) held in Rio de Janeiro, Brazil, in 1992. ▪ It is also regarded as an action agenda for the UN, other multilateral organizations, and individual governments around the world that can be executed at local, national, and global levels. The "21" in Agenda 21 refers to the 21st Century. Agenda 21 Section I on Social and Economic Dimensions is directed toward combating poverty, especially in developing countries, changing consumption patterns, promoting health, achieving a more sustainable population, and sustainable settlement in decision making.

	▪ Section II on Conservation and Management of Resources for Development Includes atmospheric protection, combating deforestation, protecting fragile environments, conservation of biological diversity (biodiversity), control of pollution and the management of biotechnology, and radioactive wastes. Kenya continues to implement Agenda 21 to support sustainable development through the integration of environmental concerns into the national development policies, plans, and programmes. Also relevant is the implementation of Agenda 17. The proposed project would need to be consistent with the objectives of Agenda 21.
The World Commission on Environment and Development (The Brundtland Commission of 1987)	▪ The Commission in its 1987 report dubbed "Our Common Future" focused on the environmental aspects of development, in particular the emphasis on sustainable development that produces no lasting damage to the biosphere and to particular ecosystems. ▪ In addition to environmental sustainability is economic and social sustainability. Economic sustainable development is development for which progress towards environmental and social sustainability occurs within available financial resources. ▪ Social sustainable development is development that maintains the cohesion of a society and its ability to help its members work together to achieve common goals, while at the same time meeting individual needs for health and well-being, adequate nutrition, and shelter, cultural expression and political involvement. The key aspect of sustainability is the interdependence of generations. *The concept of EIA is embodied in many multilateral environmental agreements. Principle 17 of the Rio Declaration provides that environmental impact assessment as a national instrument shall be undertaken for proposed activities that are likely to have a significant impact on the environment and are subject to a decision of a competent national authority.*
The Paris Agreement	▪ The agreement was adopted on 12th December 2015 at the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change in Paris, it then came into force on 4th November 2016 after meeting the ratification threshold. ▪ The Agreement provides the framework to address climate change for a safer and sustainable future. It has an objective of preventing a global temperature increase above 1.5 degrees Celsius relative to pre-industrial levels by reduction of Greenhouse gas emissions. ▪ Kenya ratified the Paris Agreement and welcomed it into force on 28th December 2016. As at now, a total of 171 parties out of 197 have ratified the agreement. *The proposed project should ensure all activities are in-line with the tenets of the Paris Agreement to minimize greenhouse gas emissions*.
Sustainable Development Goals (SDGs)	▪ The 17 Sustainable Development Goals (SDGs), are an urgent call for action by all countries - developed and developing - in a global partnership. ▪ They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

	This project is expected to cut-across the three dimensions of sustainable development - economic, social and environmental—in a balanced and integrated manner, hence making SDGs a key reference point.
Convention on the Elimination of all forms of Discrimination against Women (CEDAW),1979	This convention requires countries to eliminate discrimination against women and girls in all areas and promotes women's and girls' equal rights. State parties shall take all appropriate measures to ensure women have equal terms with men without any discrimination; the opportunity to represent their countries at the international level; the opportunity to participate in the work of international organizations. *The proposed project will ensure the tenets of human rights and protection of women and girls from sexual exploitation and abuse are embroiled in the development and are adhered to during all phases of the project.*
International Labour Organization (ILO)	The International Labour Organization (ILO) is built on the constitutional principle that universal and lasting peace can be established only if it is based upon social justice. The ILO has generated such hallmarks of industrial society as the eight-hour working day, maternity protection, child-labour laws, and a range of policies which promote workplace safety and peaceful industrial relations. The ILO has four principal strategic objectives: • To promote and realize standards, and fundamental principles and rights at work. • To create greater opportunities for women and men to secure decent employment. • To enhance the coverage and effectiveness of social protection for all. • To strengthen tri-parties and social dialogue.

6 CONSULTATION AND PUBLIC PARTICIPATION

6.1 Introduction

The Consultation and Public Participation (CPP) and Disclosure Process is a policy requirement by the Government of Kenya, which is enshrined in the Constitution of Kenya and is a mandatory procedure as stipulated by the Environmental (Impact Assessment and Audit) Regulations, 2003 (Part III, section 17), and EMCA (Cap 387) section 59 on ESIA for the purpose of achieving the fundamental principles of sustainable development.

It is an important process through which key stakeholders are given an opportunity to contribute to the overall project design by making recommendations and raising concerns on proposed projects before they are implemented. In addition, the process creates a sense of responsibility, commitment, and ownership for smooth implementation. Public consultation and disclosure requirements have been emphasized in the ESIA study through the developed project plan such as Environmental and Social Management Plan (ESMP), which has been prepared in accordance with Kenyan national laws and guidelines.

This chapter describes the process of public participation and consultation that was adopted in order to identify the key issues of the proposed office development. Views and concerns from the business enterprises surrounding the project area, government agencies, and institutions, who in one way or another would be affected or have an interest in the proposed project, were sought through public participation interviews, and a stakeholder consultation meeting.

6.2 Objectives of the Consultation and Public Participation

Consultation and Public Participation is an important process through which stakeholders are given an opportunity to contribute to the overall project design by making recommendations and raising concerns on the project before it is implemented. In addition, the process creates a sense of responsibility and commitment for smooth implementation.

The key objectives of the consultation and public participation for the proposed project were to:

1. ***Inform:*** Promote stakeholder understanding of issues about the proposed project with special reference to its key components and description, problems, alternatives, opportunities and solutions through balanced and objective information sharing;
2. ***Consult:*** To obtain feedback and acknowledge concerns and aspirations of stakeholders and interested parties on analysis, alternatives, and decisions regarding the proposed project;
3. ***Engage:*** Work directly with stakeholders to ensure that their concerns and aspirations are understood and considered in the ESIA study report and to assure them that their concerns/aspirations would be directly reflected in the developed alternatives; and that feedback will be provided on how their input influenced the final decision.
4. ***Empower:*** Make stakeholders partners in each aspect of the decision, including the development of alternatives and identification of preferred solutions to ensure ownership of sub projects at the grassroots level.

In addition, the process enabled the establishment of a communication channel among the stakeholders, the team of consultants, the project proponent and the Government. The

consultation and public participation also offered a platform for the concerns of the stakeholders to be known to the decision-making bodies at an early phase of project development.

6.3 Overview of the Stakeholder Engagement for Two Rivers Mixed Use Development

During the Environmental Impact Assessment (EIA) for the 106 Acres Two Rivers Mixed Use Development (referred to Runda Close Burn Limited), public participation was a central component of the environmental planning process. It aimed to ensure stakeholder views were integrated into project planning, decision-making, and impact mitigation. The public consultation and participation were conducted through the following methods:

i. Household socio-economic survey.
ii. Public participation meetings
iii. Focus group discussions

The public participation exercise targeted Karura Community Chapel, residents from Rosslyn Estate, Runda and Ruaka township. The process enhanced stakeholder ownership and helped shape the sustainable planning of the development. Several key recommendations were reflected in the EIA which have informed the scope and focus of the Environmental and Social Impact Assessment (ESIA) for the proposed Vantage Point Office Tower within Two Rivers Development. A robust and inclusive public participation process has been implemented to inform stakeholders, solicit their input, and integrate local concerns and recommendations into project planning and environmental management.

6.4 Stakeholder Identification

The Environmental and Social Impact Assessment (ESIA) process for the proposed Vantage Point Towers placed strong emphasis on identifying and engaging all relevant stakeholders. This ensured that individuals, groups, and affected—directly or indirectly—by the project were meaningfully consulted.

The Stakeholders were identified based on the following criteria:

- Geographic proximity to the project area and the likelihood of being impacted.
- Legal mandates and statutory roles of government agencies and institutions.
- Levels of interest or influence over project design, construction, and operation.
- Socio-economic roles, particularly for groups whose livelihoods or access to resources may be affected.

Using these criteria, the following key stakeholder groups were mapped and consulted:

- Residents surrounding the proposed project site
- The Business community and investors operating within and around Two Rivers Development.
- The chief Highridge Location and the assistant chief Karura sublocation
- Representative from the local community Based Organization
- Nairobi County Government departments including Environment, Water and Sewerage and Physical Planning.
- National agencies such as NEMA, WRA, DOSH and NWSC.

6.5 Methodology in Consultation and Public Participation

In order to ensure effective stakeholders' consultation and public participation, stakeholders' mapping was conducted, and a database was created consisting of likely interested, affected business enterprises and relevant institutions. Assessment tools were prepared for effective and systematic interviews by the environmental and social consultants. The tools included stakeholder mapping, sampling of the areas to be assessed, field visits and observations; and triangulation of field data which focused specifically on the stakeholders located within and around Two Rivers Development.

Various methods and instruments were identified and used for effective and efficient public consultation and participation. They include.

a) Administration of Public Consultation Questionnaires
b) Stakeholder consultation meetings

6.5.1 Administration of Public Consultation Questionnaires

The exercise of public consultation was conducted in the period of **July to August 2025** by the consultants through the use of open-ended questionnaires. These questionnaires were designed to gather the concerns, comments, and issues of stakeholders and neighboring businesses. The purpose of administering questionnaires was to identify the positive and negative impacts and subsequently gather proposals on the best practices to be adopted and mitigate the negative impacts respectively.

The information gathered enabled the identification of the specific issues from the respondents, which provided the basis upon which the aspects of the Environmental and Social Impact Assessment were undertaken. Among the stakeholders who were consulted through administration of ESIA questionnaires included the neighboring business enterprises, relevant associations, government agencies and institutions. A total of **Forty-Two (42)** ESIA questionnaires were administered during the consultative public participation exercise (***See Annex 15– ESIA Public Consultation Questionnaires***).

6.5.2 Stakeholders Consultation Meeting

In seeking the views of the public and in compliance to section 17 of the EMCA (EIA/EA) regulations,2003, the consultant undertook the following:

a) Ensured a public notice for the stakeholder consultation meeting was strategically posted on the project site informing the affected parties of the proposed project. The surrounding businesses and residentials also received a copy of the notice and invitation letter at least eight 8) days prior to the stakeholder consultation meeting. A copy of the public notice was also sent to the Chief Highridge Location and received by the Assistant Chief. Refer to ***Annex 11a.***

b) A public notice was published in Daily Nation and The Standard Newspapers for two consecutive weeks. The adverts ran on ***the 11th and 18th of August 2025***. The published notices are attached as ***Annex 10***.

c) Ensured that appropriate notices are sent out at least eight (8) days prior to the meetings and that the venue and times of the meetings are convenient for the affected communities and the other concerned parties. The stakeholder meeting was held at Holiday Inn Nairobi Two Rivers Mall which is approximately 100metres from the project site.

d) Ensured that a suitably qualified coordinator is appointed to receive and record both oral and written comments and any translations thereof received during the stakeholder meeting for onward transmission to the Authority. A specific invite was sent to the Chief Highridge Location, who attended and chaired the stakeholder consultation meeting.

Plate 6-1 Public notice displayed at the proposed project site

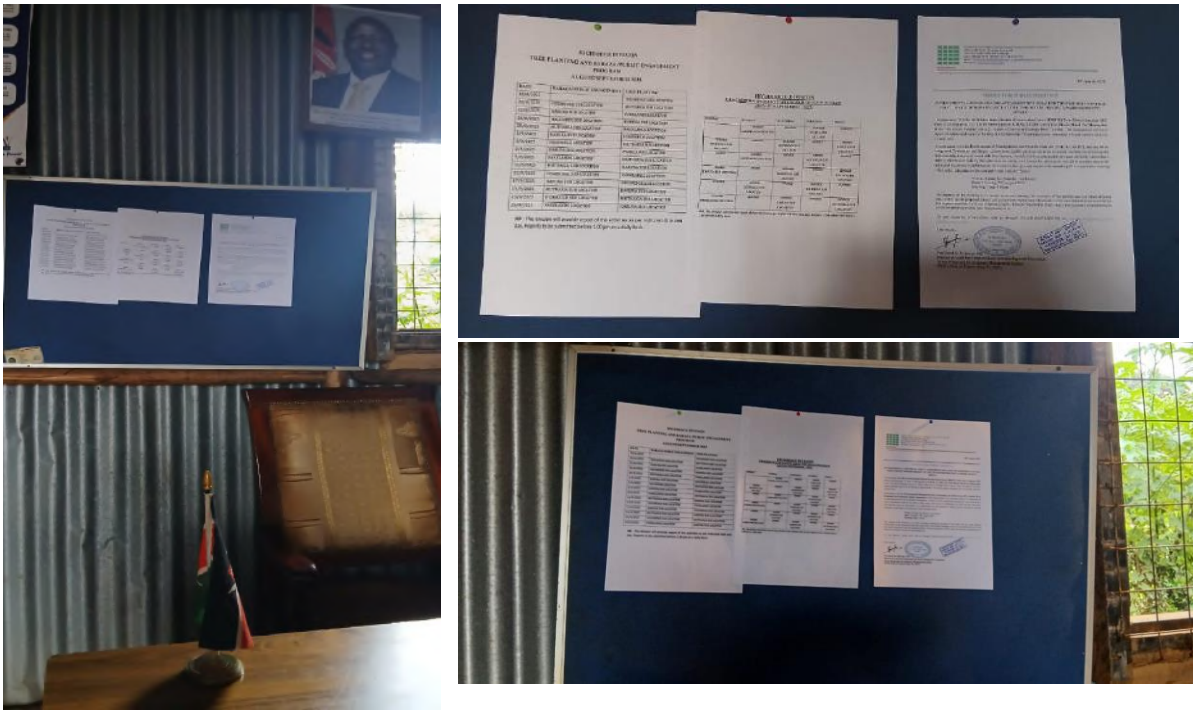


Plate 6-2 Public notice posted on the Assistant Chief's office notice board

The stakeholders' consultation meeting enabled all stakeholders to express their views and perceptions about the proposed office tower development. In the meeting, various opinions, information and recommendations from stakeholders were captured for the ESIA study as well

as to ensure full representation of the key stakeholders' views in the project. Invitation letters were delivered to respective business enterprises within Two Rivers Development as well as to organizations and relevant Government agencies and institutions eight (8) days prior to the key stakeholders' meeting (***See a sample invitation letter in Annex 11b***).

The stakeholder consultation meeting was held at Holiday Inn Nairobi Two Rivers Mall, Nairobi County on **28th August 2025** as from 9.00am to 12.00pm with a total of 37 attendees ***(Attendance Sheet is attached as Annex 12).*** The selection of the stakeholder's consultation meeting venue was based on proximity to the proposed project site and ease of site accessibility; The meeting was held to:

- Add more input to the ESIA analysis findings;
- Fill information gaps identified during the ESIA study;
- Better understand the proposed project area context; and
- Assist in prioritizing challenges that need to be addressed as well as communication channels;

Table 6-1: Attendance for the stakeholder consultation meeting held during the ESIA study

Meeting Venue	Date & Time	Attendance		
		Male	Female	Total
Holiday Inn Nairobi Two Rivers Mall	**28th August 2025** as from 9.00am to 12.00pm	**17**	**20**	**37**

Source – AWEMAC Field Survey

Plate 6-3 Lead ESIA Consultant addressing participants during the stakeholder consultation meeting

Plate 6-4 The Chief, Highridge location addressing the participants

Table 6-2 List of stakeholders engaged during the ESIA study

Stakeholder Categories	Stakeholder Group	Influence Level	Stakeholders
Main Project Promoters	Project Proponent	High	▪ TRIFIC Twin Tower Company (SEZ) Limited
	Project Architects	High	▪ John R Harris
			▪ Centum Real Estate Company
			▪ Two Rivers Development Limited
Government Institutions	Government Agencies	High	▪ National Environment Management Authority (NEMA) – Nairobi City County Office
			▪ Directorate of Occupational Safety and Health Services (DOSHS)
			▪ Nairobi City Water and Sewerage Company (NCWSC)
			▪ Kenya Power and Lighting Company (KPLC)
			▪ Special Economic Zones Authority (SEZ)
			▪ Water Resources Authority (WRA)
	Nairobi City County Departments	High	▪ **Built Environment and Urban Planning Sector:** i. Urban Development and Planning Sub-sector
			▪ **Green Nairobi (Environment, Water, Food and Agriculture) Sector:** i. Environment Sub-sector ii. Water and Sewerage Sub-sector
			▪ **Health Wellness and Nutrition Sector:** i. Public Health Sub-sector
	Nairobi City County Administration	High	▪ Chief -Highridge Location
			▪ Area Chief Karura Sublocation
Interest Groups	Residents	High	▪ Loft Residences
			▪ Riverbank Apartments
			▪ Cascadia Apartments
			▪ Mzizi Apartments
			▪ Runda Riviera Estate
			▪ Runda Gardens
	Neighboring Business Enterprises (*Management/ representatives*)	High	▪ Two Rivers Mall Management
			▪ Holiday Inn Nairobi, Two Rivers Mall
			▪ Victoria Office Tower
			▪ Somerset
			▪ Tier Data

Stakeholder Categories	Stakeholder Group	Influence Level	Stakeholders
			▪ Louis Feraud
			▪ Tomoca Coffee, Two Rivers Mall Branch
			▪ Aldar Restaurant
			▪ ArtCaffe, Two Rivers Mall Branch
			▪ Carrefour, Two Rivers Mall Branch
			▪ Cinemax Two Rivers Mall Branch
			▪ Two Rivers Sports District Management
			▪ China Square- Two Rivers Mall
			▪ River Annex Complex Business Owners
			▪ AGA Khan University Hosipital -Two Rivers Mall
			▪ Theme Park
			▪ Swarovski
			▪ MINISO Lifestyle Ltd. Two Rivers Mall Branch
			▪ SG Restaurant, Two Rivers Mall,
			▪ Smart Baby, Two Rivers Mall Branch
			▪ Spur Restaurant
			▪ FLO Retail, Two Rivers Mall
			▪ Galitos Simbisa Ltd, Two Rivers Mall,
			▪ Jambo Wrap International Ltd,
			▪ Lockwood Africa, Two Rivers Mall

6.6 Key Issues from the Stakeholder Consultation Meeting

The table below summaries key issues raised in the Stakeholder Consultation meeting.

Table 6-3 Key Issues raised during the Stakeholders meeting

SN	ISSUE	DESCRIPTION OF ISSUE	REMARKS
1.	**Traffic Impact Assessment**	Stakeholders raised concerns about increased traffic from construction vehicles, tractors, and trucks. They emphasized the need to avoid inconveniencing the neighboring residents and businesses.	The project manager noted that a Traffic Management Plan (TMP) will be implemented, to schedule deliveries during off-peak hours to prevent clashes with nearby businesses' deliveries. An alternative construction route has been planned, separate from the main entrances and movement of trucks will be scheduled to minimize disruption. He further noted that the excavated soil will largely be reused on site for landscaping due to fertile red soil, reducing offsite transportation. Clear signages shall also be erected on site to ensure smooth flow.
2.	**Project Timelines**	A representative from Holiday Inn Nairobi Two Rivers Mall sought clarification of when the project will begin and the estimated timeline for implementation. One of the neighbors sought assurance that the project construction phase would not be delayed past 24months.	Project team clarified that construction is planned to begin once all necessary permits and approvals have been obtained with the ground-breaking being scheduled for January 2026. The Project construction phase is estimated to take approximately 24 months. Additionally, he assured the participants that with adequate financing backed by an international investor and lessons from one of the ongoing projects with delayed timelines will help de-risk delivery.
3.	**Tenure, Marketing Collaboration & SEZ Eligibility**	One of the neighboring business entities inquired whether the existing tenants in the mall would enjoy discount rates in the new	The Project Manager clarified that all floors/units will be for letting. Collaboration on marketing and activation will be pursued with ecosystem tenants. As TRIFIC is SEZ, tenant selection must

		towers. and whether ecosystem tenants could co-market with discounts.	comply with SEZ eligibility criteria, prioritizing qualifying businesses. The project manager noted that proposals for tenant engagement and partnership (discounts, digital advertising, direct sales arrangements) will be considered.
4.	**Clearence of trees**	One of the neighbors raised a concern about the trees to be cleared from the proposed project site.	The Environmental Consultant confirmed that all trees on site have been documented and none of them are listed as endangered species under the IUCN red list. He advised that for every tree removed, at least two will be replanted, with landscaping designed to incorporate native and climate-adapted species.
5.	**Climate Change & Sustainability**	A representative from one of the community Based Organisations (CBOs) expressed concern about carbon emissions resulting from destruction of vegetation during the proposed project activities.	The Project Architect noted that the building design will comply with the requirements for EDGE Certification. The proposed project design had integrated the use of Green Building Technologies such as: solar energy for lighting in common areas; energy-efficient lighting and appliances; low-flow water fixtures; Integrated waste management practices; treatment of waste water by Two Rivers water and Sanitation company which can be re-used for irrigation, firefighting and flushing of toilets; reuse of materials, conservation-conscious timber sourcing, and integrating greenery into the building design among others. One of the stakeholders advised the proponent to consider applying for carbon credits due to sustainability measures being put in place.

6.	**Habitat Loss**	A Concern was raised about potential loss of habitat and effects on endemic species.	The ESIA consultant confirmed that there is no critical habitat on the project site itself. However, the nearby river ecosystem will be protected during and after construction. Buffer zones and riparian conservation measures will be enforced.
7.	**Waste Management**	A representative from the NCCG Environmental Department raised concerns on how excavated soil, debris, and other construction waste would be handled to prevent pollution. Stakeholders inquired about the plans for managing hazardous waste during both the construction and operational phases.	The Engineer explained that the project plot lies on a slope with predominantly red soils, and therefore, only minimal bulk excavation will be required. He confirmed that the foundations will be constructed using bored piles, which are efficient and less disruptive. All excavated materials will be reused on-site for landscaping to minimize waste. The ESIA lead consultant noted that Solid waste will be separated at source as per the National Waste Color Code (recyclables, non-recyclables, organic waste) and managed per EMC (Waste Management) regulations, 2024 and the Sustainable Waste Management Act, 2022. A. Certified NEMA waste handler will be contracted to collect, transport residual waste to designated waste disposal facilities within the county for disposal. He further noted that the client will be advised to partner with a company licensed by NEMA to handle Electronic Waste, as well as any other waste generated by the facility. A representative from Nairobi County Government department of Environment suggested that the excavated soil could be disposed of in abandoned quarries requiring backfilling. The client representative then committed to ensuring disposal only at approved sites.

8.	**Noise & Vibration during Construction**	Concerns were raised regarding noise pollution and vibrations, particularly from piling work during the construction phase. A representative from the Holiday Inn Nairobi Two Rivers Mall raised concerns over noise, dust, and guest disruption due to proximity.	The project manager noted that a Noise and Vibration Management Plan will be implemented, incorporating the use of piling foundations (which are less disruptive and reduces extensive excavation), application of vibration-dampening technologies, and confining noisy works to agreed-upon hours in strict compliance with construction hours as per the NEMA EIA License The Project Architect emphasized that no work shall be undertaken during the night. All noisy activities will be restricted to daytime windows, supported by a structured work program with the neighbours to minimize disturbance. The ESIA Consultant further advised that compliance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) Regulations, 2009, will be strictly observed, noting that for unavoidable continuous works (such as concrete pours), prior stakeholder notification and consent will be required. He added that routine work will be limited to 8:00 a.m.–5:00 p.m., while any weekend or after-hours work will only proceed with the necessary permits and advance communication to affected parties.
9.	**Scaffolding & Timber Use**	One of the stakeholders sought clarification on the type of scaffolding to be used and whether new trees would be cut for timber.	The design team clarified that metallic scaffolding will primarily be used, and where timber is required, reuse will be emphasized to avoid unnecessary logging.

10.	**Water Use**	One of the stakeholders sought to know the sources of water supply for the proposed development.	To meet the water demand, supply is secured from four operational boreholes within the Two Rivers development ecosystem. The on-site Sewage Treatment Plant (STP) managed by Two Rivers Water and Sanitation Company treats over 80% of grey water for reuse in irrigation and construction. Two Rivers Water and sanitation Company is also in agreement with Athi Water Works Development Agency to supply approximately 2 million liters of water per day via the Northern Collector. This will boost the water supply within the Two Rivers Development Ecosystem including the proposed project.
11.	**Water Resources & River Protection**	A representative from the Water Resources Authority raised a concern about the project's proximity to a river and the potential for pollution from construction runoff, including oil and sediment. He further requested details on stormwater control, oil/grease pollution.	The Proponent committed to maintaining the legally required riparian buffer zone, noting that WRA beacons have been demarcated and the riverfront will be treated strictly as a recreational edge with no intrusion. A detailed Storm Water Management Plan (SWMP) will be implemented, incorporating silt traps, sediment ponds, and oil–water separators to ensure all runoff is treated before discharge, while the existing dam will regulate water surges. Stormwater will be managed through dams and a piped drainage system with oil interceptors at outfalls.
12.	**Stormwater Management & Flooding Risk**	Concern raised about excess stormwater from the development and potential flooding like in other Nairobi estates.	The design team explained that the slope of the site minimizes excavation and allows natural drainage. Stormwater drainage will be integrated into landscaping. The system is designed to prevent run-off from overwhelming the river and to avoid downstream flooding.

			The project Architect noted that a Flood Risk Assessment had been initially conducted, and highest water mark level was noted for reference in future developments. This has been taken into consideration in project design.
13.	**Occupational Health & Safety**	Concerns were raised by the stakeholders on the Occupational Health and Safety Risks and compliance with Occupational Health and Safety Act, 2007	The Project Lead ESIA Consultant noted that the ESIA Report will make necessary recommendations on measures to minimize/avoid occupational health and safety risks. These shall include: (i) Compliance with OSHA 2007 and related regulations, (ii) Appointing a qualified health and safety officer (NEBOSH certified), (iii) Provision of appropriate PPEs and welfare facilities to the workers, (iv) Conducting regular toolbox talks, (v) Fall prevention systems, and (vi) Targeting of zero fatalities.

14.	**Grievance Redress Mechanism**	One of the neighbors requested clarification on the formal process for lodging complaints and providing feedback throughout the project's lifecycle and specifically sought details on the mechanisms for resolving grievances.	The Proponent committed to establishing a formal Grievance Redress Mechanism (GRM) that will include a dedicated suggestion/complaint box at the site, a hotline number, and email access, with all complaints acknowledged within 24 hours and a substantive response provided within seven days. The ESIA Consultant noted that a GRM Committee will be formed to oversee the process, supported by a suggestion box and open-door policy, while at the community level, complaints will be lodged with the Project Manager, formally logged, investigated, and resolved with clear escalation paths. Contact information for grievance handling will be prominently displayed at the site and the GRM requirements will be embedded in all contractor agreements to ensure accountability.
15.	**Energy Conservation**	Stakeholders requested clarity on green energy integration.	The project team highlighted incorporation of solar energy, energy-efficient lighting, reuse of materials, and sustainable building design. The ESIA Consultant recommended exploring carbon credit eligibility for these measures.
16.	**Employment opportunities and Skill development**	Stakeholders sought clarity on local benefits and job opportunities for residents and plans for skills development.	The Proponent reported that approximately 700 youths are currently employed within the ecosystem, with an additional 500 opportunities expected during the proposed project, particularly for local youths. As part of the Environmental and Social Management Plan (ESMP), the Proponent committed to implementing free quarterly training programs in technical skills such as masonry, carpentry, and electrical works, with a focus on engaging neighboring communities, including Gachie and Ruaka. The goal is to ensure high retention and absorption of trainees into the ecosystem's

			workforce, thereby enhancing local capacity, livelihoods, and long-term socio-economic benefits.

The stakeholders raised no objections to the proposed office tower development, given that all concerns raised during the meeting had been satisfactory addressed. Detailed Minutes of the key stakeholders' meeting are attached in the appendices (***Refer to Annex 13***).

6.7 Feedback from the administration of public participation Questionnaires

6.7.1 Positive impacts

The feedback gathered during the interviews highlighted several positive impacts of the proposed project:

6.7.1.1 *Increased demand for construction materials benefiting nearby businesses:*

Interviews revealed that the construction of the proposed office tower is anticipated to result in a significant rise in the demand for construction materials. This surge not only facilitates the progress of project development but also provides a substantial economic boost to local businesses engaged in supplying these materials.

6.7.1.2 *Employment opportunities for locals:*

The proposed office development project will serve as a source of employment for local residents as it will address a crucial need within the community, contributing to job creation and economic stability.

6.7.1.3 *Increased revenue for local businesses:*

The anticipation of increased patronage due to the office tower's presence suggests a positive economic impact. Local businesses are expected to experience a surge in revenue as they cater to the needs of tenants, thereby fostering economic growth in the area.

6.7.1.4 *Increased customer base for businesses around the proposed project:*

There will be an expanded customer base for businesses surrounding the proposed office tower and particularly for businesses located within Two Rivers Mall thus resulting in a positive spillover effect. The influx of human traffic to Two Rivers development is expected to benefit nearby establishments, creating a more vibrant local economy.

6.7.1.5 *Boost in food market supply to workers:*

The anticipation of an increased demand for food due to the project will have a positive impact on local restaurants and vendors. This boost in demand will potentially create new opportunities and enhance the viability of food-related businesses.

6.7.1.6 *Boost for nearby businesses and services:*

The positive impact the project will have on nearby businesses will be a catalyst for local economic growth. This could lead to a more thriving and interconnected business community.

6.7.1.7 *Improvement in the visual aspect of the project area:*

The project will improve aesthetics within Two Rivers development contributing to enhancing the overall visual appeal of the area. This could have positive effects on the perception of the area as a whole.

6.7.1.8 *Paving the way for new investors:*

The project is likely to pave the way for new investors making it a catalyst for attracting additional investments, potentially diversifying the local economy.

6.7.2 Negative Impacts

The following additional negative impacts were highlighted during the interviews:

6.7.2.1 *Accidents Caused by Transportation Trucks:*

The fear of accidents involving transportation trucks relates to the increased traffic and movement of construction-related vehicles. Respondents were concerned about the potential risks to both pedestrians and drivers, emphasizing the need for safety measures.

6.7.2.2 *Increased Waste generation, soil contamination and potential disturbance to local ecosystems.*

The construction, operation and decommissioning of the proposed project will definitely generate different forms of waste that pose a pollution threat if not well managed. Local ecosystems are also at risk due to the activities that need to be carried out such as clearing the vegetation and excavation.

6.7.2.3 *Traffic congestion*

An increase in traffic is expected during the construction and operation phase due to increased vehicular and human movement.

6.7.2.4 *Increased Resource consumption*

The operational phase of the office tower will lead to higher immediate demands for resources such as water and electricity

6.7.2.5 *Noise during construction*

A lot of noise is expected especially during the construction phase. Operation of construction machinery, transport trucks and other construction activities will be the primary source of this noise.

6.7.2.6 *Dust generation*

A lot of dust is expected to be generated during excavation and construction activities. This is an eyesore and could cause respiratory illnesses to persons in the vicinity.

6.7.3 Mitigation Measures from respondents

The following are the proposed mitigation measures from the respondents:

6.7.3.1 *Renewable Energy:*

The project should prioritize the use of renewable energy sources to minimize emissions and reduce environmental impact. Additionally, the servicing of equipment will be optimized to enhance energy efficiency.

6.7.3.2 *Energy Saving Practices:*

Energy-saving practices and the use of energy-efficient equipment should be incorporated into the project design and operations. Harnessing solar energy should be encouraged to further reduce reliance on conventional energy sources and promote sustainability.

6.7.3.3 *Adherence to Water Quality Regulations:*

The proponent should comply with Water Quality Regulations of 2024 by ensuring the project's construction and operation activities do not cause any form of pollution to the river bordering the project site to the eastern side.

6.7.3.4 *Area Reclamation and Regreening:*

Efforts should be made to reclaim the project area and promote re-greening initiatives to restore natural vegetation and enhance the environmental aesthetics of the compound.

6.7.3.5 *Site Investigation and Service Line Identification:*

Thorough site investigations should be conducted to identify underground service lines and infrastructure, with necessary measures taken to relocate affected services in consultation with the with relevant regulatory agencies to prevent disruptions.

6.7.3.6 *Firefighting Systems and Emergency Response:*

Elaborate firefighting systems and emergency response plans should be implemented during the operational phase in compliance with Fire Reduction Rules to ensure prompt and effective response to fire incidents.

Fire extinguishers should be serviced and maintained on-site at all times to address fire hazards, and proper handling and disposal procedures for flammable materials will be strictly adhered to.

6.7.3.7 *Noise control*

The impact of noise generated from construction activities can be reduced by ensuring construction is carried out during the day and regular maintenance of construction equipment, including vehicles.

6.7.3.8 *Environmental Management*

A robust environmental management plan to handle waste, optimize resource use and ensure compliance with regulations should be developed and followed.

6.7.3.9 *Dust control*

This can be achieved through use of dust suppression techniques such as netting, and maintenance of machinery to reduce emissions. Water can also be sprinkled on dirt roads to minimize dust generation.

6.7.3.10 *Traffic Management*

Traffic marshals should be hired to control the traffic of the delivery vehicles and vehicles involved in construction activities. Access roads should also be well designed and wide enough to facilitate easy transport in and out of the facility.

7 ANALYSIS OF PROJECT ALTERNATIVES

7.1 Introduction

This chapter analyses the project alternatives with respect to the site, materials, technology level, solid waste and water waste management options. The process enhances the project design through an examination of potential options instead of only focusing on the more defensive task of reducing adverse impacts of a single design. It also involves studying the design alternatives based on their respective environmental cost. The best alternative, usually with the least adverse impacts is chosen. Among the alternatives to be assessed are the "No project" and the relocation options.

7.2 No Action Alternative

The No Action Alternative with respect to the proposed project implies that the status quo is maintained, that is, no construction/redevelopment activity takes place. This option is most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. However, the need for such redevelopment is high and the anticipated environmental and social impacts resulting from construction have already been experienced. The land will remain under-utilized or neglected. The No Project Option is the least preferred from the socioeconomic and partly environmental perspective since without the project:

- The economic benefits especially during construction i.e. provision of jobs for skilled and non-skilled workers will not be realized.
- There will be no generation of income by the developer and the Government.
- The local skills will remain underutilized.
- No employment opportunities will be created for Kenyans who will get the opportunity to work in the project.
- Potential to deter investors from being involved in such developments.

7.3 Alternative Site

Relocation option to a different site is another option. At the moment, there are no alternative sites for the proposed development (i.e. the project proponent does not have an alternative site). This means that the proponent has to look for alternative land if relocation is proposed. Looking for land to accommodate the scale and size of the project and completing official transactions may take a long time. Additionally, it is not a guarantee that such land would be available. It is also worth noting that the said project is already underway in terms of seeking development approvals from various government departments.

The project design and planning before implementation call for costs; already incurred in the proposed development i.e. whatever has been done and paid to date would be counted as a loss to the proponent. In consideration of the above concerns and assessment of the current proposed site, relocation is not a viable option.

7.4 Schedule Alternative

This option entails postponing the project to a later time and subsequently "delaying" the project's potential impacts. The only benefit is if there would be improvements to the project's baseline conditions and technologies. However, this is not guaranteed and it may only lead to delays in development. Therefore, carrying out the proposed project with mitigation measures in place is the preferred option. In addition, carrying out the proposed project at a later time may lead to more operational and logistic costs due to increasing inflation and standards of living

7.5 Alternative Designs

All designs incorporated into this project have been done professionally taking into account the topography, soil types and structure. Environmental considerations have also been put in place to ensure the development does not negatively affect the surrounding environment. The architectural designs, structural engineering of the proposed office tower are specially designed. The construction will use modern technologies that promote sustainable development and green economy.

Sustainability design principles and construction parameters will be incorporated in the proposed project. Thus, the selection of materials will be informed by sustainable practices. Equipment that saves energy and water consumption and those that minimize hazards will be given first priority without compromising on cost or availability factors. The recruitment of labor and procurement of materials and equipment will be guided by national laws and best practice guidelines.

7.6 Alternative Materials

There is a wide range of construction and furnishing materials that can be sourced locally and internationally. The proponent plans to use certified raw materials/equipment and modern technology. Also, electrical appliances that save energy will be given first priority. Concrete pillars and walls will be made using locally sourced stones, cement, sand (washed and clean), steel bars and fittings that meet the Kenya Bureau of Standards (KEBS) requirements.

7.7 Wastewater Management Options

7.7.1 Use of Septic Tanks

This involves the construction of underground concrete-made tanks to store sludge. Septic tanks are expensive to construct and require regular emptying. In line with the Vision 2030 goals that aim for a nation where all its citizens have access to a clean, secure and sustainable environment, this alternative is inadequate to supplement wastewater disposal.

7.7.2 Use of Constructed/Artificial Wetland

Constructed wetland plants act as filters for toxins and biologically degrade pollutants. They use simple technology, low capital and have low maintenance costs. However, they require space and a longer time to function. Long-term studies on plant species on the site will also be required to avoid weed biological behavioral problems.

This alternative is therefore not suitable for this project.

7.7.3 Connection to the Existing Sewer System

Connection to the Nairobi City County sewer line will solve the waste management issue at a very minimal cost and in an environmentally efficient manner. This is the most viable option for the project since the area is already connected to the Nairobi City Water and Sewerage Company sewer line. *The proposed development intends to channel storm water as well as foul water to the existing Nairobi City Water and Sewerage Sanitation Company sewer system.*

7.7.4 Grey Water Treatment Plant Technology

This involves the construction of a wastewater treatment plant that uses chemicals to treat the effluents to acceptable standards. While it is expensive in the short term to construct and maintain a wastewater treatment plant, it is reliable, efficient and cost-effective in the long term. The sludge from the treatment plant can be composted and used for gardening. *The proponent intends to Channell all grey water to Two Rivers Water and Sanitation Company waste water treatment plant. The treated water will be used for irrigation and flushing toilets.*

7.8 Solid Waste Management Options

There will be a lot of solid waste that will be generated from the project during construction. An integrated waste management system will be adopted to ensure that the recyclable and non-recyclable solid waste materials are properly disposed of and in an environmentally friendly approach. The proponent will ensure that waste is minimized at the source, there will be reuse of waste where applicable and separation of waste, i.e., recyclable from non-recyclable. The proponent will also engage a waste handler that is NEMA certified to help with the removal and disposal of waste. An integrated solid waste management system is recommended which is as follows:

a) First, the proponent should give priority to *prevention and reduction at source* of the materials. This option will demand a solid waste management awareness programme.
b) The Proponent will consider **separating the waste from source** through awareness programmes among the employees as well as guests.
c) The proponent will also consider **recycling and reusing** the plastic waste as a third alternative in priority. The recyclables may be sold to waste buyers locally or directly to any company that recycles the plastic waste.
d) The third priority in the hierarchy of options is land filling *of the waste that is not recyclable or reusable*. It is to the interest of the proponent and the community that the waste is effectively managed so as to maintain a safe and healthy environment to the workers and the community at large through appropriate disposal mechanisms.

7.9 Water Supply Alternatives

Water is a finite resource and is becoming scarce by the day in most parts of the country and even globally. The available sources of water supply are discussed below.

7.9.1 Tankers/Bowsers

There are commercial water supply services which haul water to the client to supplement existing water sources. The proponent can use the services as a supply option in times of limited supply.

7.9.2 Rainwater Harvesting

This entails installation of rain gutters and storage tanks for rainwater harvesting from the roofs of the buildings. This water can be used for non-portable purposes such as watering lawns, gardens, flushing toilets and general cleaning. The option is ideal for water conservation but would not be adequate to fulfil water needs of the development.

7.9.3 Borehole water consumption

Two Rivers Mixed Use Development already has in place three operational boreholes that serve both the commercial and facilities within the development. The proposed Vantage office tower will connect to the existing water supply connection for Two rivers Development.

7.9.4 Connection to Nairobi County Water and Sewerage Company (NCWSC)

The project area has access to the Nairobi City Water and Sewerage Company (NCWSC) water supply line. However, there are times that the supply from the line is unreliable, with prolonged periods of rationing. Relying solely on supply from the NCWSC line would not meet water needs for the development.

7.9.5 Connection to the Northern Collection Tunnel water supply system

Two Rivers Development has obtained approval to connect to the Northern Collection Tunnel water supply system. The project is estimated to supply Two Rivers Development with approximately 2,000M^3 of water on a daily basis. This intervention is expected to enhance water security, improve operational efficiency, and support the social and economic functions of the development.

7.9.6 Multiple Water Supply Option

With the estimated daily water demand of about 180m^3 for the proposed development, the proponent will consider water supply from Two Rivers Water and Sanitation Company Limited which relies on supply from the three existing boreholes, recycled water from the waste water treatment plant and future connection to the Northern Collection Tunnel bulk water supply and ensuring sufficient water storage.

The water will be first stored in underground tank before being pumped to high level tanks located at the roof level of the building with a capacity of one and a half. days storage. The underground tank will be portioned into two; potable water in one section with about 3 days storage and Firefighting water storage in the other section.

This is the most viable option as it would guarantee uninterrupted water supply for the proposed development.

7.10 Energy Source

7.10.1 Natural lighting/Ventilation

This refers to making maximum use of the natural environment during the design stage. This option allows for optimizing the use of natural lighting. It is the most efficient, environmentally friendly and cost-effective, especially for daytime lighting. Car parks will have a combination of natural and mechanical ventilation. Mechanical ventilation will be done at basement 03 where natural ventilation is a challenge. For basement 02 and 01 a combination of natural ventilation with jet fans will be

employed to ensure optimal air quality. The washroom shall be mechanically ventilated though riser duct strategically located in the space for this purpose.

7.10.2 Solar panel

Installation of solar panels is another green technology the developer can prioritize as energy supply. Solar power is environmentally sound and doesn't produce fossil fuel waste by-products. In addition, they will have lower carbon footprint and reduced impact on the environment. A solar PV plant and all associated installations shall be installed at the roof of the proposed development. The generated power shall then be evacuated and fed into the central Two Rivers Power Company grid system.

7.10.3 Kenya Power & Lighting Company Ltd (KPLC)

The main source of electricity will be by Kenya Power and Lighting Company. However, to reduce the electricity costs, priorities should be to; make use of motion detectors, use of Light Emitting Diodes (LEDs) that have Light Dependent Resistance (LDR) for security and street lighting and use of hybrid electricity i.e. combining energy supply from photovoltaic solar panels with KPLC power source to provide a balanced energy supply.

Thus, a combination of KPLC, Natural lighting and Solar Power is the most recommended option for this project.

7.10.4 Generator

The cost of running a generator is very high and the emissions from the fossil fuel are not environmentally friendly. Therefore, from the environmental considerations as well as economic analysis; use of generator is not a preferred option for the proponent to consider in supplementing connection to power supply. However, a generator can be used as a back-up power supply option in case of emergency or power-outage. The project shall have backup generators to support 100% of the entire Electrical load within the development. The generator for efficiency and optimal usage, the generators shall operate in a synchronized manner. The generators proposed shall be of 415V, 50Hz Diesel generators. These shall be silent type with canopy. The generator systems shall also incorporate appropriately sized fuel storage day tanks in addition to their base tanks.

7.11 The Proposed Development Alternative

Under the proposed development alternative, the developers of the proposed project would be issued with an EIA License. In issuing the license, NEMA would approve the proponent's bid to construct the office tower provided all environmental measures and alternative technologies are complied with during the construction period and operational phases. Since the potential negative impacts are relatively insignificant and the benefits accrued from the project will benefit both the proponent and the economy, this is the **best alternative**.

8 ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

8.1 Introduction

This chapter identifies and predicts the potential effects on various environmental elements arising from the construction, operation, and decommissioning of the proposed project. It comprehensively outlines the potential impacts on both the biophysical and socioeconomic aspects of the local environment resulting from the planned activities and sub-activities. The prediction of impacts helps to minimize the adverse impacts and maximize the beneficial impacts on environmental quality.

The chapter further outlines the mitigation measures to minimize or eliminate negative impacts while enhancing positive ones. Where applicable, residual impacts after mitigation are highlighted to show whether they remain significant.

The proposed project will create impact on the environment in three distinct phases:

- During the construction phase;
- During the operation phase; and
- During the decommissioning phase.

The project characteristics, form the basis for impact identification and evaluation. The impacts that are expected to arise from the project are either positive, negative, direct, indirect, short-term, or temporary. There are no adverse or permanent impacts anticipated in the proposed project.

The consultant used the scale indicated in *table 2.2* to analyze the proposed project impacts and quantified them on a scale of 0 – 5.

8.2 Positive Impacts during the Construction Phase

Positive impacts associated with the proposed project during the construction phase include:

8.2.1 Job Opportunities

Throughout the lifetime of the proposed project, numerous job opportunities will be created, there will be need for casuals and skilled personnel during the construction, operational and decommissioning phase. This phase employs labourers including Architects, Engineers, Quantity surveyors, project managers, EHS officers, welders, carpenters, machine operators, carpenters, electricians, plumbers, and masons which also goes in tandem with the unskilled set of workers including general labourers for tasks such as site preparation, material handling, and clean-up. This phase shall also inevitably employ the services of project managers, site supervisors, and foremen to oversee the construction process. The project site shall need to be guarded during this phase, bringing in the need to employ guards to take charge of the project site, more so during the night. The proposed development is estimated to create approximately 500 opportunities during the construction phase.

The project through the generation of employment will stimulate other economic activities. It will also enhance the skill levels of casual laborers through intensive and well-structured technology transfer. Most of the construction labour will be sourced locally and around the communities

neighboring the project area, and in this way benefiting the youth who bear the brunt of the high rate of unemployment in the country. This impact will be **Moderate (value of 2).**

8.2.2 Gains in the Local and National Economy

The construction phase of the project will generate revenue for both the National and County Governments. The National Government will benefit from various approval fees (e.g. NCA, NEMA EIA Processing fee among others). The county government will gain revenue in the form of construction plan approvals, local business licenses/permits, etc. All materials will be imported through the existing transport hubs which will increase the county's revenue. This impact will be **Moderate (value of 2).**

8.2.3 Provision of Market for Supply of Building Materials

The project will require supply of large quantities of building materials, most of which will be sourced locally thus providing a ready market for local building materials. This will in turn lead to income generation for local materials suppliers, quarrying companies, hardware shops, etc. Surrounding businesses will benefit from an increased customer base, increasing business activity and expansion. High influx of customers coming from the project site will also promote publicity and competitiveness of local businesses. This impact will be **High (value of 3).**

8.2.4 Provision of Opportunities for the Advancement of Environmental Technologies

The need to ensure that environmental impacts are mitigated and controlled has fueled the mushrooming of many new technologies that provide sustainable environmental solutions. A good example is embracing green building practices during construction. New construction projects provide numerous opportunities for the furtherance of sustainable green building practices and the promotion of progressive environmental technological solutions. This impact will be **Moderate (value of 2)**.

8.2.5 Provision of a ready market for food supply

The inception of the project's construction activities will create a demand for food required by the large number of workers and other related staff. The increased food demand will in turn increase more business opportunities and revenues for food vendors mostly belonging to the low-income cadre of society comprising women and youths, directly improving their livelihoods. This impact will be **Moderate (value of 2).**

8.2.6 Introduction of a State-of-Art Building, Amenities and Equipment

Any project of such magnitude provides an opportunity for developers and contractors to embrace and make use of the most advanced technologies and best practices in the construction industry. The proposed project is no exception, as it will incorporate state-of-the-art building technologies and designs with the installation of modern amenities, equipment and facilities for use by ever-evolving clients with a taste of modern spaces. This impact will be **Moderate (value of 2)**.

8.2.7 Improved Building Technology/ Knowledge Transfer

With the commencement of the project, it is highly likely for construction workers to gain new skills which will empower and propel them into better opportunities. Through collaboration with international contractors and consultants, there will be opportunities for technology and knowledge

transfer to local engineers, technicians, and workers. They will gain new skills that will empower and propel them into better opportunities.

Additionally, the proponent is committed to implementing free quarterly training programs in technical skills such as masonry, carpentry, and electrical works, with a focus on engaging neighboring communities, including Gachie and Ruaka. The goal is to ensure high retention and absorption of trainees into the ecosystem's workforce, thereby enhancing local capacity, livelihoods, and long-term socio-economic benefits. This will improve local capacity in high-rise construction and sustainable building practices. This impact will be **moderate (value of 2).**

8.3 Negative Impacts during the Construction Phase

8.3.1 Vegetation Clearing

The proposed project site has a substantial amount of green space. The existing vegetation consists of grass and some young trees on the western side and mature trees on the eastern side of the project site. Site-clearing activities will be associated with the loss of biodiversity. The loss of vegetation also has a great effect on the general and localized environment and normally can modify the area's microclimate. Vegetation present at the project's footprint is classified under the 'Least Concern' (LC) category of the "International Union for Conservation of Nature (IUCN) Red List Category and Criteria" with no endangered species. Therefore, there is no vegetation of special conservation or cultural importance present on-site. The proponent intends to cut down the mature trees and safely uproot and replant the young trees. Metallic scaffolding will primarily be used, and where timber is required, reuse will be emphasized to avoid unnecessary logging. This impact will be **moderate (value of 2).**

Potential Mitigation Measures

- Clearly delineate areas for land preparation/other activities in the field to prevent loss of vegetation outside of designated works areas.
- Landscape and plant vegetation in all open areas after the completion of the project with climate-adaptive species.
- The contractor should develop a landscaping plan. Landscaping will prioritise native species to enhance biodiversity and minimise invasive species risk

8.3.2 Increased Noise and Vibration Generation

The project site is located within the Two Rivers Development, a mixed-use area with ongoing commercial, residential, and infrastructure development. Existing noise sources include moderate vehicular traffic along Limuru Road, activities within the nearby shopping mall, and occasional construction works within the vicinity. Sensitive receptors within the area include nearby residential apartments (Riverbank Apartments, and the Loft Residency).

Baseline noise measurements were conducted on 15th July 2025. The background noise levels measured in the project area were used in assessing the baseline noise conditions whereby noise levels were taken from Four (4) positions on site and measured over two minutes using a calibrated and KEBS approved noise meter. The objective of the noise survey was to identify areas within and around the proposed facility where users, employees, or neighbouring receptors may be exposed to harmful levels of noise, and to develop strategic recommendations that promote compliance with

national environmental legislation and global public health standards. The detailed baseline noise measurements report is annexed to the report (Refer to annex 8)

The analysis of the monitoring results revealed that the majority of measured locations at the proposed office site exhibit Environmental Noise levels significantly within national regulatory thresholds and international health-based exposure limits. The highest equivalent continuous noise level (Leq) was observed near events ground towards TRIFIC border at 50.3 dBA, which is within the EMC limit for commercial zones of 60 dBA (day) and the WHO recommended exposure limit of 70 dBC for commercial settings. The peak noise levels (LCpeak), ranging from 83.4 dBC to 96.0 dBA across different points, were within the WHO's 100 dBA limit intended to prevent immediate risk of hearing damage. These noise levels, while compliant, are a combined result of compounding environmental factors such as adjacent construction activity.

During construction works, there is the potential for permissible/acceptable human noise levels being temporarily exceeded due to the operation of lorries, moving machines & equipment, material delivery vehicles and workers communicating at the site. To be affected mostly are the site workers neighbouring Riverbank Apartments, Victoria Towers, Holiday Inn Nairobi Two Rivers Mall and Two Rivers Mall all of which are located within Two Rivers Development. Since noise beyond some level is itself a nuisance if not maintained within acceptable limits (an exposure 85 Db/ 8 hours as WHO standards). Exposure of workers beyond the specified limits will lead to hearing complications such as tinnitus, and partial or even complete hearing loss. The construction will incorporate the use of piling foundations which are less disruptive and reduces extensive excavation

To address the observed acoustic challenges and ensure sustainable compliance, the consultant has proposed a set of practical, site-specific recommendations that prioritize both public health and environmental integrity. The impact will be **high (value of 3)**

Potential Mitigation Measures

The following noise-suppression techniques will be employed to minimize the impact of temporary construction noise and vibrations at the project site.

- Ensure that working times are within the permissible times as per NEMA Regulations.
- Schedule high-noise activities during periods when ambient background noise is typically elevated (e.g., daytime hours), thereby minimizing perceptible disturbances to adjacent developments and the public.
- The construction activities shall be restricted to daytime from 700hrs to 1700hrs. No night construction activities unless authorization are given by relevant Authorities.
- Implement the use of vibration-dampening technologies to minimize noise levels.
- Installation of sound-absorptive materials or acoustic barriers during construction of the proposed office tower to reduce the reflection and projection of impulsive sounds from the surrounding zones.
- Plan the site clearance and construction activities in consultation with the neighbors so that activities with the greatest potential to generate noise and vibration are scheduled accordingly.

- Clear and informative signage should be installed to identify noise-sensitive zones within the development.
- Utilization of equipment that has the lowest possible sound levels.
- Ensure that all vehicles and construction machinery are well maintained and regularly serviced to avoid excessive noise generation.
- Provide appropriate protective gear including ear corks and ear muffs to all construction workers working in noisy sections and enforce application at all times during the construction works.
- Sensitization of staff and contractors to foster a culture of shared responsibility in managing noise impacts.
- Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use.
- The delivery of construction materials and noisy activities should be done preferably at off-peak hours to minimize high level noise impacts.
- Provide and enforce the use of ISO certified PPEs (e.g., earplugs or earmuffs) for workers exposed to noise levels above 85 dB(A), and
- Ensure adherence to legal thresholds (e.g., 60 dB(A) in residential areas during the day) and document findings in environmental monitoring reports in compliance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.

8.3.3 Increased Solid Waste Generation

The project envisages major construction works, thus, there will generation of solid waste from the project. The project plot lies on a slope with predominantly red soils, and therefore, only minimal bulk excavation will be required. The foundations will be constructed using bored piles, which are efficient and less disruptive. All excavated materials will be reused on-site for landscaping to minimize waste.

Other types of solid waste expected to be generated will include construction debris, cement bags, wood, broken glasses, containers, metal, sharp objects such as nails, organic waste, paper, and plastic among others during the development's construction phase. Transportation of construction materials to the site or solid waste to from the project site can also cause littering along the access roads and nearby facilities if the transportation trucks are not appropriately covered. The contractor will be required to disposed of all waste as per the provisions of the EMCA (Waste Management) Regulations of 2024 and the Sustainable Waste Management Act, 2022. The second schedule of the regulations has provided for a National Waste Colour code i.e. Green for Organic Waste, Black for General Waste and Blue for Recyclable Waste. This impact will be **High**, hence a **value of 3.**

Potential Mitigation Measures

- Use of an Integrated Solid Waste Management System (ISWMS); through a hierarchy of options including source reduction, recycling, composting and reuse;
- Comply to the National Waste Colour code through segregation of waste at sources i.e. Green for Organic Waste, Black for General Waste and Blue for Recyclable Waste

- Keep a record of the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, reused, recycled, recovered or disposed of (Waste tracking documentation)
- Efficient estimation and use of building material to reduce waste and recycling/reuse where feasible;
- Ensure daily removal of solid waste materials from the construction sites to avoid unnecessary accumulation at the locations;
- Engage the services of a NEMA Licensed waste handler to collect and transport waste to designated disposal sites;
- The contractor should consider dumping the excavated soils in abandoned quarries;
- Proper handling and disposal of all paint materials confirmed to contain lead as a hazardous waste;
- Choose building materials that are least polluting and environmentally sustainable;
- Provide a central waste receptacle;
- Provide mechanisms to segregate waste at source to enable recycling;
- Consider selling reusable or recyclable waste materials such as paper, cardboard, plastic etc. to local waste recyclers;
- The excavated soil (if in excess after being utilized in landscaping) should be disposed of in abandoned quarries requiring backfilling;
- Develop a comprehensive waste management plan for the construction period guided by the ESMP and the NEMA Waste Management Guidelines;
- Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024 and the Sustainable Waste Management Act, 2022.

8.3.4 Increased Generation of Waste Water

During construction, a large number of workers will be employed who will require adequate sanitation facilities. Wastewater will also be generated during construction activities such as concrete curing. This will be a concern that the contractor has to address as he engages in the construction of the proposed office development. This impact will be **moderate**, hence a **value of 2**.

Potential Mitigation Measures

- Provision of sufficient sanitary facilities separate for males and females and that are well-maintained with adequate hand washing facilities.
- Water containing pollutants such as cement, concrete, lime, chemicals, and fuels to be discharged into a conservancy tank for removal from the site;
- Control of water usage during construction activities to minimize wastage;
- Fix leaking taps and pipes in record time;
- Contain and sustainably manage potential pollutants of any kind to ensure the water table is not endangered;
- Promote recycling of wastewater and storm-water where feasible;
- Comply with the provisions of the Environmental Management and Coordination (Water Quality) Regulations, 2024

8.3.5 Air Pollution

Air pollution during the construction phase will be significant due to dust and vehicle emissions, and increased windy weather conditions. Dust will be produced during; site preparation activities such as clearing, excavation, and leveling activities; construction activities including cutting, grinding, and drilling materials like concrete, stone, and brick which release fine particulate matter. Material handling activities like loading, unloading, and transporting construction materials are also anticipated to produce dust.

Dust emissions ($PM_{2.5}$ and PM_{10}) will thus increase proportionately with the additional magnitudes of earthworks, materials mobilization and batching as well as additional movements of trucks into and out of the project site. Dust in any of its form can pose both health and environmental issues. Health hazards posed by dust range from respiratory issues, cardiovascular issues and eye irritation. From an environmental point of view, dust degrades air quality and can also reduce visibility, creating safety hazards.

Construction equipment and vehicles associated with the construction of the proposed office tower will generate additional emissions into the atmosphere within the project area. The overall actual emissions (Carbon monoxide (CO), Carbon dioxide (CO_2), Nitrogen oxides (NO_x), Sulphur oxides (SO_x) and Volatile Organic Compounds (VOCs) etc.) will be dependent on the additional number of fossil fuel-driven equipment including earth movers, pavers, batching plants and material movement trucks.

Below is a summary of the Ambient Air Quality Measurements conducted on 15th July 2025:

Ambient Sulphur Dioxide (SO_2) concentrations across the monitoring points ranged from 42.89 to 59.76 µg/m^3. While all values remained within the EMCA limit (80 µg/m^3) and the IFC guideline (125 µg/m^3), they exceeded the WHO 24-hour guideline of 40 µg/m^3, suggesting a moderate presence of sulfur-based emissions. These levels may reflect regional influences from fuel combustion from neighboring construction machinery or external vehicular activity.

Ambient monitored Carbon monoxide (CO) levels ranged from 1.355 mg/m^3 to 1.503 mg/m^3, comfortably within the EMCA (4 mg/m^3) and WHO/IFC (4-10 mg/m^3) limits. CO does not appear to be a pollutant of concern at the site during the monitoring period.

Particulate Matter (PM) values were more variable. PM2.5 concentrations ranged from 24.11 to 30.84 µg/m^3, exceeding both the WHO guideline (15 µg/m^3) and the IFC threshold (25 µg/m^3) across multiple points. PM10 concentrations ranged from 66.82 to 72.91 µg/m^3, exceeding both WHO (45 µg/m^3) and IFC (50 µg/m^3) guidelines but remaining within the EMCA limit of 100 µg/m^3. The highest levels were recorded at points with bare and exposed soil, indicating potential for dust generation during dry periods.

Hydrogen Sulphide (H_2S) levels were uniformly low across all points, measured at 0.0008 µg/m^3. This indicates negligible impact from sanitation sources or organic decay. These levels are well below any threshold of concern and are not expected to contribute to odor or health impacts under current site conditions.

TVOC levels, while measurable, did not have clear benchmark thresholds under EMCA regulations and were therefore included for context only.

Continuous monitoring of the ambient air quality is recommended as this will assist in obtaining concrete information on the status of air pollution. The measurements should be done at different weather and seasons to ensure that all the weather patterns are taken into consideration during the monitoring process.

This impact will be **Moderate**, hence a **value of 2**.

Potential Mitigation Measures for Impacts due to Dust:

- To the extent possible, undertake earthworks in damp conditions to reduce dust emissions;
- Regular sprinkling of water on work areas to prevent fugitive dust violations.
- Use of dust nets/screens around the construction site to contain and arrest dust
- Materials management and batching plants associated with the project should be designed for low dust and emissions;
- Minimize exposed areas through scheduling of construction activities to enable dust control;
- Onsite dirt piles or other stockpiled material should be covered, windbreaks installed, water and/or soil stabilizers employed to reduce wind-blown dust emissions;
- All staff employed at the construction site and visitors to be provided with dust masks when required;
- During periods of high wind, dust-generating operations shall be prohibited within 200 meters of residential areas,
- Collecting storm water and using it to dampen the construction site;
- Enforce onsite speed limit regulations for construction vehicles along access routes;
- Restricting heights from which materials are to be dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading.
- Ensure surface paving of walking paths and incorporate the use of vegetation buffers.

Potential Mitigation Measures for Impacts due to Vehicular Emissions:

- All construction machinery should be regularly and promptly maintained and serviced in accordance with the manufacturer's specifications to minimize the generation of hazardous gases;
- Drivers should be instructed on the benefits of driving practices that reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits;
- Discourage machine/equipment operators and drivers of construction vehicles from unnecessary revving and idling;
- Sensitize construction drivers and machinery operators to switch off engines when not in use;
- Fueled construction equipment to be used where feasible with environmentally friendly fuels such as low-sulphur diesel;
- All raw materials where possible must be sourced as close as possible to the construction site thus reducing emissions from vehicular traffic;
- Embrace modern construction technology that suppresses hydrocarbons emission;

- Construction site operations involving diesel powered equipment should consider strategic placement and acoustic enclosures to minimize emissions of total volatile organic compounds (TVOC);
- Regularly monitor air quality levels (quarterly) to ensure compliance with Environmental Management and Coordination (Air Quality) Regulations, 2024.

8.3.6 High Demand for Raw Materials

The proponent will source building materials such as sand, ballast and hardcore from a registered quarry and sand mining firms, whose projects have undergone satisfactory environmental impact assessment/audit and received NEMA approval. Since such firms are expected to apply acceptable environmental performance standards, the negative impacts of their activities at the extraction sites are considerably well mitigated. This impact will be **moderate**, hence a **value of 2**.

Mitigation Measures

- Source building materials from local suppliers who use environmentally friendly processes in their operations;
- Ensure accurate budgeting and estimation of actual construction material requirements to ensure that the least amount of material necessary is ordered;
- Ensure that damage or loss of materials at the construction site is kept minimal through proper use and storage.

8.3.7 Soil Erosion

Vegetation present at the site will be cleared during site preparation for construction. This may result to increased soil erosion and sedimentation of nearby water courses caused by surface runoff and through storm drains. Further, during construction, earthworks and truck movements on unpaved surfaces are bound to result in significant amounts of loose soil materials which are prone to water and wind erosion. Uncontrolled soil erosion can have adverse effects on the local storm water drains, road network and sewer line blockages.

Soils will be disturbed as excavations must be done to establish the foundation. In addition to the loss of productive land due to soil erosion, soils can be impacted because of disposal of waste materials, and compaction with heavy machinery used for construction. This impact will be **moderate**, hence a **value of 2**.

Potential Mitigation Measures

- Site clearing or disturbance of the natural vegetation should be planned and approved as part of the project management process;
- Terracing and leveling the project site to reduce run-off velocity and increase infiltration of rainwater into the soil;
- Providing adequate road drainage based on road width, surface material, compaction, and maintenance;
- Providing effective short-term measures for slope stabilization, sediment control and subsidence control until long term measures for the operational phase can be implemented;
- Soils excavated should be used for re-filling and should not be left exposed to wind or water

for long periods;
- Runoff loaded with sediment and other suspended materials from the site/working areas should be prevented from discharging to adjacent watercourses and/or water bodies must be prevented;
- Prepare a restoration scheme to guide re vegetation of areas cleared during construction comprising of indigenous species and to be rid of any invasive species;
- Banding the site to control run-off loaded with sediment and other suspended materials from the site from watercourses.

8.3.8 Hazardous Material Spillage

During the construction phase, some of the site's construction equipment will require diesel and/or oil. It is also important to note that oil/grease spills are prevalent in construction sites and in most areas that make use of petroleum products. Such products contain detrimental elements to the environment. Though this may not be common at the site, it is wise to control and observe the little that could occur especially during maintenance of the machinery. There is therefore the risk of leaks or spills and the potential for contaminating the site's soil. The impacts of improperly stored fuel and other chemicals could prove detrimental if these fluids infiltrate the surface waters or groundwater systems. Management guidelines should be implemented in order to regulate and document the use of explosives, chemicals and fuels within the project site. Operators should express due caution when it comes to the re-fueling of equipment on site, as an accidental oil spill is more likely to occur during these activities. This impact will be **minimal**, hence a **value of 1**.

Potential Mitigation Measures

- Train personnel on the risks of oil spills and leakages;
- Refueling and maintenance of large vehicles to only take place at designated areas;
- All hazardous materials to be stored in appropriately banded containers and placed on concrete floors where applicable;
- Maintain spill response kits at the construction site at all times;
- Prepare and display on-site spill response procedures and train workers on spill response and management;
- The site design to incorporate oil sumps at the parking areas to isolate oil spills from parked vehicles that might spill into the storm drains;
- No solid waste, fuels, or oils shall be discharged on the land surface or into drains.
- All oil products and materials should be stored in site stores;
- Any wash-off from the oil/grease handling area or workshop shall be drained through impervious drains;
- Regularly check for leaks from paint containers;
- All machinery must be keenly monitored to prevent oil leaks on the ground. This can be affected through regular maintenance of the machinery.
- Maintenance and servicing of machinery must be carried out in a designated area (protected service bays) and areas where oils are completely restrained from reaching the ground. Such areas should be covered to prevent storms from carrying away oils into the soil or water systems.

8.3.9 Increased Water Demand and Consumption

Construction projects utilize significant quantities of water for concrete mixing, laying and curing. Water will also be required for human use including drinking and sanitary needs.

To meet the water demand, supply is secured from three operational boreholes within the Two Rivers development ecosystem. The on-site Sewage Treatment Plant (STP) managed by Two Rivers Water and Sanitation Company treats over 80% of grey water for reuse in irrigation and construction. Two Rivers Water and sanitation Company is also in agreement with Athi Water Works Development Agency to supply approximately 2 million liters of water per day via the Northern Collector. This will boost the water supply within the Two Rivers Development Ecosystem including the proposed project. This impact will be **high** hence a **value of 3.**

Potential Mitigation Measures

- Water should be recycled where possible without compromising on quality and health.
- Ensure good use of water resources during construction by ensuring regular repair and replacement of broken or worn-out pipes and fittings.
- Identify activities and areas that cause high consumption and implement conservation practices.
- The contractor should put in place sound and sufficient water storage reservoirs that are leak-proof;
- Install water-saving devices in appropriate places such as flow regulators and self-closing taps.
- Provide neighbors with adequate notice regarding water connections disruptions etc.
- Ensure Compliance with the Water Act 2016, and Environment Management and Coordination Act (Water Quality regulations), 2024.

8.3.10 Increased Energy Demand

Construction activities will use engine-driven machinery such as transportation vehicles, concrete mixers, vibrators, compressors and power generators that require fossil fuel inputs such as diesel and petrol. Their continual application will increase the demand for energy. This impact will be **moderate** hence a **value of 2.**

Potential Mitigation Measures

- Switch off engines when not in use;
- Use well-serviced construction machinery that is efficient in fuel consumption;
- Maximize the use of natural lighting by limiting construction works to daytime;
- Repair or replace any faulty equipment with more efficient and economical alternatives;
- Utilize electricity meters to monitor energy consumption within all work sections and identify areas that cost most energy in order to forestall appropriate energy conservation measures;
- Create awareness among workers on the importance of conservation of energy resources.
- Employ technologies that demand less energy consumption;
- Use energy-saving/efficient lighting systems;

- The project team highlighted, energy-efficient lighting, reuse of materials, and sustainable building design.
- Consider Utilizing electricity meters to monitor energy consumption which is subject to coordination with energy optimization consultant and identify areas which cost most energy in order to forestall appropriate energy conservation measures.

8.3.11 Water Pollution

The proposed project site is bordered by River Gichii to the Eastern side. Due to the project's proximity to a river, water contamination is likely to occur, attributed to leakage and spillage of petroleum-based products, earthworks, excavation, stockpiling, and the operation of machinery near watercourses may lead to increased sediment runoff, oil and fuel leaks, and the accidental discharge of construction materials into River Gichii among otrhers. This is likely to negatively affect the nearby water resource (River Gichii) and compromise the water quality in the area. This impact is expected to be **high** and is given a **score of 3.**

The Water Resources Authority conducted pegging of the Gichii stream that dissects the Two Rivers development and is located on Eastern side of the proposed project site. The marked riparian land ranged from 8.5 Metres to 10 Metres from the stream. The proposed project design has maintained the riparian reserve. Stormwater will be managed through dams and a piped drainage system with oil interceptors at outfalls.

Mitigation Measures

To mitigate and minimize the impact on water resources, the following measures will be implemented:

- Adhere to the demarcated riparian land and ensure no construction activities are undertaken at the riparian reserve.
- Ensure all construction materials and debris are properly disposed of to avoid discharge into the nearby River Gichii.
- Precautionary measures should be taken to prevent wastewater from being discharged into the environment, particularly during heavy rainfall periods when the risk of run-off is amplified.
- Ample facilities should be provided to the workers as per good practice standards requirements and the generated wastewater should be discharged into the right channels, to minimize the risk of discharge into the environment.
- Liquid waste from construction activities should be disposed of in an environmentally sound manner to minimize the risk of discharge into the river.
- Construction materials and spoils should be stored away from the water body to prevent the risk of leakage.
- Construction vehicles, machinery and equipment should be parked or stored away from river riparian to ensure spillage of petroleum-based products do not run-off.
- Provide mobile toilets and handwashing stations for construction workers, to be regularly serviced by licensed waste handlers,
- Clean up exposed waste near the river and construct leachate collection systems including HDPE pipes and concrete drainage channels.

- Ensure construction activities adhere to the Environmental Management and Coordination (Water Quality Regulations), Regulation, 2024 and the (Water Resources) regulations 2025.

8.3.12 Increased Storm Water and Surface Runoff

As drainage areas become increasingly impervious due to urban development, storm water runoff volumes, flows, and velocities increase, while base groundwater flows decrease. Rain water that would otherwise be "soaked" by the plants and soils is instead directed to drainage systems and nearby streams. Human activities in the city also generate increased pollutant loads, ranging from heavy automobile traffic to the use of various chemicals. These pollutants, as well as the deposition of atmospheric pollution from outside the city, build up on impervious surfaces during dry weather. Rain then "washes" these pollutants into the city's drainage channels, streams, and rivers.

Excavation of soils to construct foundations may loosens soil which may be washed alongside any poorly disposed waste on site into storm drains, clogging them. The loose soil is also likely to increase sediment load in storm water. Together with the loss of flora, changing the characteristics of the project site from its present state to a more built state and changing the soil's characteristics, will lead to a change in the water regime at and around the project site. This is because the built areas will increase run-off while reducing the percolation of water into the ground and thereby also changing the sub-surface hydrology. By overloading the capacity of storm sewers, un-managed storm water runoff is responsible for increased combined sewer overflow events and adverse downstream impacts such as flash flooding, channel erosion, surface and groundwater pollution, and habitat degradation.

The slope of the proposed project site minimizes excavation and allows natural drainage. Stormwater drainage will be integrated into landscaping. The system is designed to prevent run-off from overwhelming the river and to avoid downstream flooding. A Flood Risk Assessment had been initially conducted, and highest water mark level was noted for reference in future developments. This has been taken into consideration in project design. This impact is expected to be **moderate** and is given a **score of 2.**

Mitigation Measures

The design of the proposed office tower to be specific allows for water to seep back into the aquifer. The proposed office development will also have lots of green spaces to reduce surface runoff. The below additional mitigation measures are recommended to reduce surface runoff

- Develop and implement a Storm Water Management Plan (SWMP) incorporating silt traps, sediment ponds, and oil–water separators to ensure all runoff is treated before discharge.
- An effective storm water drainage system should be installed on the site to lead away all water from the foundation areas without allowing any water ponding.
- The drainage system should ensure that surface flow is directed suitably into the public drains provided to control flooding within the site;
- Installing cascades to break the impact of water flowing into the drains;
- Controlling earthworks and ensuring the management of excavation activities;

- Drainage channels should be installed in all areas that generate or receive surface water such as; car parking, driveways and along the building block edges of the roofs;
- The channels should be covered with gratings or other suitable and approved materials to prevent the occurrence of accidents and entry of dirt that would compromise the flow of run-off;
- The channels should be designed with regard to the peak volumes such as periods or seasons when there is a high intensity of rainfall;
- The drainage channels should ensure the safe final disposal of run-off /surface water and should be self-cleaning which means it should have a suitable gradient;
- Trees can be planted to reduce storm water runoff. Through the processes of evapo-transpiration and nutrient uptake, trees located on a development site have the capacity to reduce storm water runoff volumes and improve water quality. Further, through root growth, trees can improve the infiltration capacity of the soils in which they grow. Both tree planting and tree preservation can contribute to storm water management on a site.

8.3.13 Traffic Impact

The proposed project is located within Two Rivers Mixed Use Development, off Limuru Road. The entrance to Two Rivers experiences traffic congestion during peak hours when workers/residents are reporting for work. With the implementation of the proposed development, there will be increased human and vehicular traffic in the area leading to traffic snarl-ups and congestion.

It is considered that traffic would be managed to the extent that it would not have a significant impact. Traffic flows will be maintained in all but occasional circumstances, and these will be scheduled to occur when they have the least impact.

An alternative construction route has been planned, separate from the main entrances and movement of trucks will be scheduled to minimize disruption. excavated soil will largely be reused on site for landscaping due to fertile red soil, reducing offsite transportation. Working hours shall be those generally in force in the Building and Civil Engineering Trades in Kenya and as per NEMA Licensing conditions. No work shall be carried out at night unless necessary where a permit shall be obtained from NEMA. This impact will be **moderate** hence a **value of 2.**

Potential Mitigation Measures

The project contractor should put in place the following measures to reduce traffic:

- Develop and implement a Traffic Management plan and delivery management plan to enhance traffic movement within the site.
- Heavy Commercial Vehicles (HCVs) delivering construction materials should observe designated speed limits for the area;
- Minimize haulage and transportation of construction material during peak hours to prevent clashes with nearby businesses' deliveries.
- Flagmen/traffic marshals should be deployed at the entrance to control traffic;

- Proper signage and warnings should be placed at strategic locations to direct traffic to minimize inconveniences to motorists and forewarn other motorists of HCVs turning and transportation of abnormal loads and on site to ensure smooth flow.
- Construction activities should be done within the confines of the construction area. Ensure the construction doesn't occupy road reserves and complies with the Traffic and land demarcation obligations;
- Enough parking spaces shall be provided for the vehicles transporting workers and heavy tracks offloading the construction materials;
- The selection of construction areas shall be based on the existing road layout and the location of access to the various commercial and residential properties;
- Ensure maintenance of access roads to the site and repair of any damage caused by trucks.
- Any change in the normal programming of activities that will significantly disrupt normalcy along the abutting project roads should be timely communicated.

8.3.14 Damage to Existing Infrastructure

The project has the potential to damage access roads leading to the site due to the weight of trucks transferring construction materials such as concrete, steel, cement, etc. Water supply, internet connection and power supply systems might be disrupted during excavation and construction works.

Potential Mitigation Measures:

- Mapping of all utility Infrastructure (if any) located within or around the project site before commencement of excavation works.
- The contractor will be expected to maintain roads and repair damages to infrastructure.
- Liaise with the Nairobi City County Government to ensure safe removal of underground utility infrastructure at the proposed project site during excavation works.
- The contractor should work in consultation with the relevant county departments and agencies to repair damages to infrastructure or relocate infrastructure.
- Inform users of planned service interruptions sufficiently ahead of time for them to put in place strategies to mitigate the consequences of the interruptions of time for them to put in place strategies to mitigate the consequences of the interruptions.

8.3.15 Insecurity

Construction sites in Kenya attract all manner of people not directly engaged in the work. These will include people hoping to secure some form of casual work, outside caterers and idlers. This introduces an element of insecurity at the construction site. There have been past cases on the risk of fuel pilferage for some other project within the project site area due to lack of security personnel manning the site. This impact will be **moderate** hence a **value of 2.**

Potential Mitigation Measures

- The contractor should conduct due diligence on potential employees and require police clearance for laborers;
- Secure the site and have security personnel manning the site;
- Hire services of a security firm to monitor personnel or visitor movement within and close to the site;
- Formulate and instill a place of work conduct;

- Ensure every construction staff biodata is well captured;
- preservation can contribute to storm water management on a site.

8.3.16 Occupational Health and Safety Risks

The proposed project will entail employment of a significant number of labors especially during construction phase. The majority of laborers will be locally hired, with the exception of skilled workers who may not be found in the project areas. However, potential risks engaged both for the hired skilled and non-skilled workers, especially during construction period include health hazards, poor living conditions, accidental hazards risks, etc. Similarly, hiring labor from external areas may cause social risks on the local communities including gender-based violence, price hiking of daily used products/foods, etc. Substantial risks are associated in-terms of hiring child labor or forced labors.

There is a possibility of accidents occurring in the process of construction works. This is likely to be experienced by the construction workers. Construction workers will be susceptible to health and safety hazards which such as muscular-skeletal injuries, cuts and bruises, falls into unmarked/ uncovered trenches, and falls from height. The project management will need to provide first aid and possibly primary health care services to the staff and crew. Emergency and serious cases can be sent to the most accessible clinics and hospitals. The proponent will establish a formal Grievance Redress Mechanism (GRM) for the that will include a dedicated suggestion/complaint box at the site, a hotline number, and email access, with all complaints acknowledged within 24 hours and a substantive response provided within seven days. This impact will be **High** hence a **value of 3.**

Potential Mitigation Measures

- Send a notification to DOSHS prior to the commencement of construction and register the site with them.
- Appoint a site safety officer to monitor compliance with OSHA, 2007.
- Provide ISO Certified personal protection equipment (PPEs), such as safety boots, helmets, gloves, protective clothing, goggles, and ear protection, in accordance with relevant health and safety regulations (OSHA 2007), for workers.
- Develop an Emergency Response Plan (ERP) to effectively manage emergencies, including those related to environmental and public health risks, such as hazardous material spills and other similar incidents.
- Provide comprehensive training for all construction workers on basic sanitation and healthcare practices, general health and safety protocols, and the specific hazards associated with their work.
- Obtain necessary licenses, permits, and approvals for construction and hazardous operations,
- Develop an OHS policy manual accessible to all workers and contractors and establish an OHS Management team responsible for: Policy enforcement, Hazard identification, Incident response and continuous improvement
- Keep a well-stocked first aid kit of the prescribed standard and have trained first aiders among the project employees.
- The area around which elevated work is taking place should be barricaded to prevent unauthorized access. Working under personnel on elevated structures should be avoided.

- Conduct a baseline Work Hazard Analysis and develop mitigation plans for each hazard,
- Provide mandatory safety induction for all personnel including task-specific training (e.g., for dredging operators, welders, sewage handlers) and maintain records of all training and certifications,
- Conduct pre-employment medical checks and periodic health screenings as well as the
- provision of first aid kits and trained first aiders on site,
- Provide clean drinking water, sanitary facilities, and rest areas for workers,
- Ladders should be used according to pre-established safety procedures for proper placement, climbing, standing, as well as the use of extensions.
- Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of workers, among others.
- Ensure that electrical fittings are done by qualified contractors and regular inspections of the facility's electrical system is done by qualified personnel to avert electrical faults.
- Ensure proper installation of staircases and lifts that could serve as alternative escape routes during emergencies.
- Ensure that scaffolds are constructed to the requisite standards with safe means of access.
- Ensure all lifting plant eequipment are examined by an Authorized Plant Examiner.
- Carry out ooccupational medical eexaminations for all workers.
- Train workers on Occupational Safety and Health and Construction Safety.
- Ensure provisions for reporting incidents, accidents and dangerous occurrences, during construction use prescribed forms from the Directorate of Occupational Safety and Health.
- Obtain a Work Injury Benefit Act (WIBA) cover for employees.
- Ensure Compliance to the Occupational Safety and Health Act, 2007.

8.3.17 Community Safety and Health Risks

During this phase the neighbouring community will be susceptible to health and safety hazards posed by demolition and construction works. Risks include: Air pollution due to dust, noise, falling objects, solid waste, potential water contamination, and disruption caused by increased traffic and human activity, falls into un-marked/ uncovered trenches and accidents from construction vehicles.

The proponent will establish a Grievance Redress Committee to oversee the registration and handling of complaints, supported by a suggestion box and open-door policy. The complaints from the surrounding community will be addressed through the Project Manager's office, formally logged, investigated, and resolved with clear escalation paths. Contact information for grievance handling will be prominently displayed at the site and the GRM requirements will be embedded in all contractor agreements to ensure accountability.

This impact will be **moderate**, hence a **value of 2**.

Potential Mitigation Measures

- The proponent should establish a communications desk within the project site where all concerns can be recorded to ensure a continued engagement between the proponent, project manager and the community.

- Establish a Grievance Redress Mechanism (GRM) and track incidents and complaints using a GRM monitoring log.
- Develop and communicate Emergency Preparedness and Response Plans through community Liaison office.
- Ensure continuous engagement with the community to identify community risks as a result of the development.
- Install catch platforms around the site perimeter to arrest any falling objects;
- Immediate neighbors and other stakeholders should be sensitized on the dangers and risks associated with the construction works for enhanced self-responsibility on personal safety;
- Disabled access features and safety signage should be placed strategically around and within the site;
- Limit the movement of workers and contractors within project-defined areas and designated traffic and transport routes or locations;
- Control access to the site and implement a permit system for vehicle access for the duration of construction;
- The contractor should comply with the provisions of: OSHA, 2007; Public Health Act Cap 242; Public Roads and Roads of Access Act Cap 399; Traffic Act Cap 403; and the Kenya Roads Act, 2007.

8.3.18 Labour and Working Conditions

The Local Content Policy mandates that the contractor prioritizes the recruitment of construction workers from Nairobi County. with particular preference given to those from project-affected communities. It is expected that approximately 75% of the workforce will consist of unskilled labor. Furthermore, the policy stipulates that at least 15% of all employees, both skilled and unskilled, will be women, ensuring equal employment opportunities and promoting gender inclusivity in the workforce. The local employment objectives, targets and process will be communicated to local people by area administrators (Chief's and Assistant Chief's). The contractor's recruitment Policy shall comply with the labour laws of Kenya.

Mitigation Measures

Non-Discrimination and Equal Opportunities: The Project's Contractor HR policy, labor management principles, and procedures will include provisions to ensure strict adherence to the principles of equal opportunity and fair treatment. Discrimination will not be tolerated in any form, whether in employment, promotion, training, compensation, dismissal, or wages, based on race, religion, language, ethnic identity, sexual orientation, faith, civil, social or economic status, disability, political opinion, union membership, pregnancy, or military service.

Workers Grievance Mechanism: The contractor will develop and implement a formal workers' Grievance Mechanism for all direct and subcontracted employees that will follow legal requirements of Kenya and align with good international practice. The grievance mechanism will allow workers to raise reasonable workplace concerns, including options for making anonymous grievances. The workers will be informed of the existence and functioning of the grievance mechanism at the time of hiring. The contractor will monitor the effectiveness of the employee grievance mechanism on regular basis.

Forced Labour and Child Labour: The contractor HR policy and labor management principles will explicitly state that forced labor and child labor will not be tolerated under any circumstances. The policy will outline specific measures to ensure that both the contractor and its subcontractors comply with these principles, including regular monitoring, audits, and enforcement mechanisms to prevent violations. The project's contractor HR Policy and labour management principles will clearly state that there will be no forced labour and child labour.

8.3.19 Gender-based Violence

The project may contribute to the rise of gender-based violence and harassment (GBVH) cases, which may include sexual exploitation and abuse (SEA), sexual harassment (SH), and other forms of violence such as physical, sexual, emotional, and financial control. As outlined in the World Bank Good Practice Note on GBV (2019), GBVH can be exacerbated by resettlement and land redistribution processes and a large influx of male workers.

Although the sensitivity of the receptive environment is high, the potential impact on GBVH is considered moderate in magnitude, since it may only be experienced during construction period. Specific indicators to assess the nature of GBVH incidents and the demographics of victims will be added to the monitoring arrangements of the grievance mechanism, to ensure that GBVH cases are adequately monitored and that corrective measures can be put in place in a timely manner.

Mitigation Measures

To reduce the risk of women experiencing gender-based violence and harassment (GBVH) in the context of labor influx and construction activities, several mitigation measures will be implemented. These measures aim to minimize the likelihood of GBVH occurring and reduce the severity of its impact, should it occur.

- Establish workers' safety committee which will include at least one trained female worker representative.
- Develop and implement a workers' code of conduct, including GBVH policies, and mandatory training of all workers on sexual harassment and GBVH protocols.

8.4 Positive Impacts during the Operation Phase

8.4.1 Employment Creation

The proposed project will create employment in different tiers, there will be employment created for those who will be primarily involved in its implementation, supervision and maintenance and for those hired to support facilities and recreational areas. Some of the employment opportunities include: managerial positions, security personnel, solid waste recyclers and collectors, chefs, cleaners, repair and maintenance technicians. This impact will be **high** hence a **value of 3.**

8.4.2 Optimal Use of Land

Land is a scarce resource in Kenya and the implementation of the proposed project will ensure optimal use of land to the great benefit of the country and its people. This impact will be **moderate** hence a **value of 2.**

8.4.3 Increased Commercial Viability

The establishment of the project will increase the economic viability of the area and will consequently increase the area's land value due to the potential for high returns after development. This will attract

more high-income investors into the region as well as more middle-income groups as settlers. This impact will be **moderate** hence a **value of 2.**

8.4.4 Provision of Affordable, Modern and Easily Accessible Office Spaces

The proposed project aims to provide affordable, modern and easily accessible office spaces to both local and international tenants. All units within Vantage Point Office Tower will be for letting. Collaboration on marketing and activation will be pursued with ecosystem tenants. With TRIFIC being a SEZ, tenant selection will comply with SEZ eligibility criteria, prioritizing qualifying businesses. This impact will be **moderate** hence a **value of 2.**

8.4.5 Aesthetic Enhancements

The project will result in the beautification of the locality, with a design concept inspired by educational infrastructure interacting with nature, resulting in high-quality environmental standards. This impact will be **moderate** hence a **value of 2.**

8.5 Negative Impacts during the Operation Phase

8.5.1 Increased Solid Waste Generation

The office spaces are expected to generate enormous amounts of solid waste during its operation phase. These will include waste papers, electronic waste, broken glass and kitchen waste, etc. The waste may accumulate to undesirable volumes if not segregated and disposed of regularly, thereby becoming a nuisance. This impact will be **moderate** hence a **value of 2.**

Potential Mitigation Measures

- Use of an integrated solid waste management system (i.e. through a hierarchy of options: Reduce, Reuse, Recycling and Dispose);
- Provide a central waste receptacle strategically within the office tower and practice temperature modification to keep pests and rodents away;
- Comply to the National Waste Colour code i.e. Green for Organic Waste, Black for General Waste and Blue for Recyclable Waste
- Keep a record of data on the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, reused, recycled, or disposed of (Waste tracking documentation)
- Contract a NEMA registered solid waste handler to collect, transport and dispose of the waste in legal dumpsites;
- Work with an e-waste firm to manage electronic waste should the amounts increase to a substantial quantity;
- Undertake regular employee training programs to raise awareness about waste reduction and recycling practices;
- Perform regular waste audits to identify gaps in waste management and implement more efficient and cost-saving practices;
- Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024.

8.5.2 Increased Wastewater Generation

Large volumes of wastewater will be generated from the sanitary facilities, cleaning activities and kitchen spaces. This has the potential to infiltrate and contaminate both ground and surface water sources like Gichii river which is located on the eastern side of the project site if not well managed, posing a health risk to both human beings and animals. This impact will be **moderate** hence a **value of 2**

Mitigation Measures

The proponent intends to channel greywater to Two Rivers wastewater treatment plant for treatment. The Water can then be re-used for irrigation and to flush toilets.

- Regular inspection and maintenance of internal sewer system;
- Adopt more efficient use of water resources in order to reduce of overall amount of waste water generated by the facility.
- Comply with the provisions of Environmental Management and Coordination Water Quality regulations, 2024 and the Water Act, 2016.

8.5.3 Air Pollution from Emissions

Potential emissions from the proposed project will include hydrocarbon emissions from fuels-based machinery such as generators, lawn mowers among others that release particulate matter into the environment. This impact is anticipated to be **minimal** therefore is given a score of **1.**

Mitigation Measures

- Use of unleaded premium petroleum products that release less harmful substances into the atmosphere.
- Regular maintenance and servicing of generators and keep a record of the maintenance schedules.
- Any diesel-powered equipment should consider strategic placement and acoustic enclosures to minimize emissions of total volatile organic compounds (TVOC);
- Conduct Annual Stack emission monitoring and testing for the generators;
- Adhere to all the provisions of EMCA (Air Quality) Regulations 2024 regarding management of air emissions such as limiting emissions to permissible levels and standards.

8.5.4 Water Pollution

The proposed project site is bordered by River Gichii to the Eastern side. Due to the project's proximity to a river, water contamination is likely to occur, attributed to leakage sewerage infrastructure, improper disposal of operational waste and discharge of wastewater which may be generated from the operational activities. This is likely to negatively affect the nearby water resource (River Gichii) and compromise the water quality in the area. This impact is expected to be high and is given a score of 3.

The Water Resources Authority conducted pegging of the Gichii stream that dissects the Two Rivers development and is located on Eastern side of the proposed project site. The marked riparian land ranged from 8.5 Metres to 10 Metres from the stream. The proposed project design has maintained the riparian reserve. Stormwater will be managed through dams and a piped drainage system with oil interceptors at outfalls.

Potential Mitigation Measures

- Adhere to the demarcated riparian land and ensure no activities are undertaken at the riparian reserve.
- Precautionary measures should be taken to prevent wastewater from being discharged into the environment, particularly during heavy rainfall periods when the risk of run-off is amplified.
- Waste from the operational activities should be disposed of in an environmentally sound manner to minimize the risk of discharge into the river.
- Ensure operational activities adhere to the Environmental Management and Coordination (Water Quality Regulations), Regulation, 2024 and the (Water Resources) regulations 2025

8.5.5 Increased Pressure on Existing Resources

The expected increase in population will increase pressure on existing infrastructure, utilities and social amenities in the area. The establishment and operation of the office tower will increase the strain on this scarce resource. An increased demand for water and energy is also anticipated. This impact will be **moderate** hence a **value of 2.**

Potential Mitigation Measures

The proponent will put in place the following waste management, energy and water conservation strategies:

a) **Water Conservation System**; The development will make use of low flow water saving water conditioning systems and brassware. The proponent will consider installing dual flush toilets and sensor taps.

b) **Solid Waste Recycling and Recovery System;** The proponent will practice waste segregation at source and clearly label the bins for the different waste streams such as paper, cardboard, plastic, metal and electrocnic waste etc. The proponent will work with licensed waste companies to collect the separated waste, recycle and dispose of it accordingly.

c) **Recycling of Liquid Waste:** The proponent **will channel grey water to the existing Two Rivers waste water treatment plant.** Treated water from the plant will be used to flush toilets and to irrigate the landscaped areas.

d) **Energy Conservation:** The proponent will put in place the following measures to reduce energy consumption:

- LED lighting and lighting controls will be installed thus saving up to 50% of energy on lighting.
- Use of mechanical ventilation system with EC/VFD fans thus consuming less energy
- Automation of HVAC system responding to load demand.
- Use of VFD pumps for potable water.
- Use of sensor-controlled lighting system.
- A Building Management System (BMS) for Mechanical, Electrical and Plumping (MEP) systems monitoring and operation optimization will be installed.
- A solar PV plant and all associated installations shall be installed at the roof of the proposed development. The generated power shall then be evacuated and fed into the central Two Rivers Power Company grid system.

- LED lighting and lighting controls will be installed for low energy consumption.
- A Building Management System (BMS) for Mechanical, Electrical and Plumping (MEP) systems monitoring and operation optimization will be installed.

Further, the proponent should:

- Incorporate adequate water storage tanks for a sustainable and consistent supply of water within its premises.
- Identify activities and departments that consume high amounts of water and electricity and take appropriate measures to reduce consumption.
- Install a discharge metre at the various water outlets to monitor water use.

8.5.6 Occupational Health and Safety (OSH) Risks

Several OHS risks will arise as a result of either the activities, equipment and materials during the operational phase. These include but not limited to: risk of fire, slippery floors from washing with soaps and detergents, oil spills (both fuel and kitchen oil), burns, cuts, moving parts, electricity and electrical equipment among others.

A plan to manage the OHS risks during this stage will also be important and necessary. This plan may simply be an extension of the one developed for the construction phase and can be further extended to the decommissioning phase. This impact will be **moderate** hence a **value of 2.**

Recommended Mitigation Measures

- Develop and implement a comprehensive OHS Management System aligned with the Occupational Safety and Health Act, 2007 and ISO 45001 standards.
- Design safe access systems, including guardrails, anti-slip flooring, and enclosed ladders to prevent falls.
- Provision of PPE to all personnel working in potentially hazardous areas or with potentially hazardous equipment and replace worn-out PPE.
- Conduct routine risk assessments and safety audits.
- Placing signs and cautions to alert people of hazards such as slippery floors.
- Servicing equipment and machines to ensure efficiency.
- Providing firefighting equipment and maintaining them to ensure they are fully functional.
- Delineating fire and emergency assembly points and creating awareness to ensure all people at the facility are aware of them, e.g. through the use of maps on elevators, staircases etc.
- Putting in place an Emergency Response Plan and creating awareness around it.
- Providing adequate storage for hazardous and flammable substances and controlling access to them.
- Maintain safety signage and demarcations throughout the facilities to indicate hazard zones, PPE requirements, and emergency exits,
- Provide mandatory training for all personnel on workplace hazards, emergency response, and safe work practices.

- Performing emergency drills on a frequent basis, setting benchmarks for response and evaluating performance to ensure continuous improvement of response and preparedness.
- Compliance to the Occupational Safety and Health Act 2007

8.5.7 Increased Generation of Noise

The project's activities are expected to generate noise from various sources such as diesel generators. Mobile sources of noise will mainly include cars and trucks ferrying goods to the office tower. Although the noise levels emitted during this phase will be less compared to the noise generated during the construction phase, the impact will be felt more as the number of occupants will be more compared to the occupants during the operational phase. **This impact will be high hence a value of 3.**

Mitigation Measures

- Ensure regular maintenance for equipment e.g. HVAC, Generator etc.
- Erecting signs notifying occupants of noisy activities and areas. Conducting all noisy activities during the day when permissible levels are higher.
- Provision of PPE such as ear plugs for employees working in noisy conditions or with noisy equipment.
- Using equipment with low noise ratings or noise reduction technologies such as silencers for the generators. The proponent plans on using generators with acoustic enclosures.
- Comply to maximum permissible levels as specified in the EMCA Noise and Vibration regulations, 2009.

8.5.8 Increased Human and Vehicular Traffic

With the operation of the proposed development, there will be increased vehicular and human traffic to the office Development. The proponent has provided for 700 parking spaces in the proposed development with additional parking being available within Two Rivers Development. This impact will be medium hence a value of 2.

Mitigation Measures

- Ensure fast screening and access of all vehicles and people entering the premises to prevent traffic snarl-up at the entry point.
- Ensure that appropriate road /pedestrian signages are positioned strategically within the office tower
- Ensure that all drivers making use of the parking adhere to all traffic rules to minimize incidences of accidents.
- Encourage and facilitate public transport use, walking, and cycling by providing infrastructure like secure bike parking.

8.6 Positive Impacts during the Decommissioning Phase

8.6.1 Rehabilitation

Upon decommissioning, there is potential of to rehabilitate the site through replacement of soil and vegetation which will lead to improved visual quality of the area. Alternatively, a new project may be commissioned at the site. This impact will be **moderate** hence a **value of 2.**

8.6.2 Employment Opportunities

There will be eemployment opportunities created for staff who will be involved in demotions, loading and transportation of materials. This impact will be **minimal** hence a **value of 1.**

8.6.3 Recycling Usable Materials

Not all the demolished materials will go to waste as some may be used to backfill quarries and roads. This impact will be **moderate** hence a **value of 2.**

8.6.4 Relief for Utility Resources Such as Water, Electricity and Land

There will be a significant reduction in the demand for water and energy resulting in conservation of scarce resources. The vacant land may be used for other development needs or left vacant, allowing for ample green spaces. This impact will be minimal hence a **value of 1.**

8.6.5 Leeway to Establish New Development Projects

The decommissioned project will avail land for other uses impacting positively on sustainability. This impact is minimal hence the **value of 1.**

8.7 Negative Impacts during the Decommissioning Phase

8.7.1 Generation of Demolition Waste

Demolition of the project's buildings and related infrastructure will result in large quantities of solid waste. The waste will contain materials such as blocks of concrete, metal, drywall, wood, glass, paints, adhesives, sealants and fasteners. Although demolition waste is generally considered less harmful to the environment, there is evidence that large quantities of such waste may lead to the release of certain hazardous chemicals into the environment. The generally non-toxic chemicals such as chloride, sodium, sulphate and ammonia, which may be released as a result of leaching, are known to lead to the degradation of groundwater quality. This impact will be **high (value of 3).**

Mitigation Measures

- Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024.
- Conduct a thorough environmental audit of to ensure proper disposal of demolition waste.
- Engage in community outreach programmes to address post-decommissioning impacts on local communities.

8.7.2 Air Pollution

The processes, material and equipment during decommissioning emit air pollutants including oxides of carbon, nitrogen and sulphur from the burning of fossil fuels or particulate matter from cutting and bending of materials such as steel, glass, shavings, bricks as well as movement of soil. These pollutants pose risks to human health and the environment by polluting the air, water and soil as well as causing respiratory diseases, skin disorders and allergies. Large quantities of dust generated during demolition works will affect workers demolition staff as well as the neighbouring enterprises. This impact will be **moderate (value of 2)**.

Mitigation Measures

- Truck drivers to maintain low speed to avoid raising dust.

- Employees to be provided with dust masks and goggles.
- Installation of dust trappers around the site to prevent dust from spreading in the neighbourhood.
- Sprinkling dusty areas including access roads with water to suppress dust levels.
- To the extent possible, undertaking earth works in dump conditions to reduce dust emissions.
- Design material material management equipment and batching plants in a way that generate low levels of dust and emissions.
- Cover trucks used in transportation of soil and other solid materials from the site to prevent the spreading of dust into the surrounding areas.

8.7.3 Noise and Vibration

There will be a considerable increase in noise generation during demolition. The main sources of noise will be from mechanized equipment, cars and trucks and civil works.

This impact will be **High (value of 3).**

Mitigation Measures

- Workers should be provided with appropriate Personal Protective Equipment (PPE) such as ear muffs and ear plugs and their use enforced.
- Inform immediate neighbors of potential noise levels to reduce anxiety and complaints.
- Place warning signs and mark locations with potential high noise levels.
- Consult and educate stakeholders before blasting. Blasting must follow required standards.
- Consult neighbors and schedule demolition activities during the day and at off-peak hours as agreed.

8.7.4 Occupational Safety and Health Risks

The occupational hazards and risks at this phase of the project will be similar to the ones faced at the construction phase of the project. Additional hazards like workers stepping on sharp objects may be introduced. This impact will be **High (value of 3).**

Mitigation Measures

- Ensure workers are properly instructed and supervised;
- Establish a Health and Safety Plan (HASP) that covers the scope of works carried out at this phase;
- Appoint/maintain a trained health and safety team for the duration of the works;
- Provide workers with adequate and appropriate PPE;
- Provide workers with adequate drinking water and breaks;
- Embrace modern technology in selection of equipment, machinery and tools so as to minimize health and safety hazards;
- Ensure all other applicable safety standards according to the provisions of OSHA 2007, are adhered to.

8.7.5 Loss of Jobs

Majority of the jobs created during the construction and operational phase will be terminated. This can have adverse effects on the livelihoods of workers and their families. This impact will be **high (value of 3)**.

Mitigation Measures

- Implement a responsible and transparent communication strategy to inform workers well in advance about the decommissioning of the project and the potential of them to lose jobs.
- Work closely with local employment agencies to assist affected workers in finding alternative employment opportunities, potentially in other local projects or industries.
- Consider providing training programs or skills development initiatives to enhance the employability of affected workers.
- Engage with local community leaders and authorities to explore alternative economic opportunities that can absorb the workforce affected by the decommissioning.

8.7.6 Loss of Business Opportunities

The decommissioning of the project will result also lead to loss of numerous opportunities that local businesses benefited from. This impact will be **moderate (value of 2)**.

Mitigation Measures

- Issuance of prior notices local businesses.
- Maintain ties with local businesses and socioeconomic communities and provide information on the availability of new opportunities for business collaborations.

8.7.7 Loss of Revenue for the Developer

Decommissioning the project will have a huge financial implication on the developer. This impact will be **high (value of 3).**

Mitigation Measures

- The developer/office tower manager to find a niche market.
- Seek advice on potentially lucrative business ideas from the established business community and individuals that are part of the developer's business network.

8.7.8 Potential Theft of Reusable Decommissioned Materials

This phase will generate a huge pile of unusable and reusable materials which will attract thieves looking to making quick gains from the sale of scrap metals and other recyclable waste. This impact will be **minimal (value of 1).**

Mitigation measures

- Ensure the site is secured on a continuous basis until the end of the decommissioning stage.
- Sort out all reusable waste materials and equipment and sell them off or donate them before disposing of the rest of the demolition waste debris.

- Discourage idling and prohibit unauthorized access to the site during the decommissioning and rehabilitation phase.

9 CLIMATE CHANGE RISK AND VULNERABILITY ASSESSMENT

9.1 Introduction

This Chapter has been prepared in the context of Kenya's Vision 2030 green growth agenda, the country's updated Nationally Determined Contribution (NDC) committing to a 32% reduction in GHG emissions by 2030, and global sustainability best practices for the hospitality sector. It serves as a guiding document for implementing emission reduction and offset measures in line with regulatory requirements and the recommendations given in the Environmental and Social Impact Assessment (ESIA) report.

The adoption of the Paris Agreement on Climate Change, followed by its signing by nearly 200 countries, marked historic turning point in global climate action. Under the Paris Agreement, signatory nations committed to limiting the average global temperature increase to well below 2°C, aiming for 1.5°C. In line with this global goal, Kenya has committed to developing and implementing an ambitious Climate Action Plan (CAP) under C40's Deadline 2020 programme. This plan will align with international climate targets and contribute to mitigating climate change impacts at both the national and global levels.

The study was guided by the **Climate Change Act, 2016 and its amendment of 2023**. This Act guides the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for sustainable development in Kenya. The global challenge posed by climate change threatens the sustainability of business operations. The proposed project aims to address these challenges through the implementation of effective mitigation and adaptation measures. The key objectives of the study drawn from the Act are to:

a) Mainstream climate change responses into development planning, decision making and implementation;
b) Build resilience and enhance adaptive capacity to the impacts of climate change;
c) Formulate programmes and plans to enhance the resilience and adaptive capacity of human and ecological systems to the impacts of climate change;
d) Mainstream and reinforce climate change disaster risk reduction into strategies and actions of the proposed development;
e) Mainstream inter-generational and gender equity in all aspects of climate change responses;
f) Promote low carbon technologies, improve efficiency and reduce emissions intensity by facilitating approaches and uptake of technologies that support low carbon, and climate resilient development;
g) Provide guidance in the development and implementation of carbon markets and non-market approaches in compliance with international obligations and;
h) Mainstreaming the principle of sustainable development into the planning for and decision making on climate change response.

The purpose of this assessment is to outline the strategies and measures that will be implemented to manage and mitigate the greenhouse gas (GHG) emissions associated with the proposed office development project. The report provides an estimate of the emissions generated during both the

construction and operational phases, and presents a comprehensive approach for reducing these emissions at source and offsetting any residual emissions through verified programmes and initiatives.

The objectives of this report are to:

- Quantify the construction and operational carbon footprints of the proposed development.
- Identify key sources of emissions within the project lifecycle.
- Propose effective emission reduction measures and green building strategies.
- Develop a comprehensive carbon offset plan to achieve net-zero emissions in line with national and international sustainability targets.

9.2 Climate Change Risk and Vulnerability Assessment Methodology

Though the project area is quite small to cause any considerable microclimate change, it bears the potential of adding to the cumulative effects of other infrastructural development that emit Green House Gases (GHGs). Change in land surface from natural vegetation to man-made built landscape will have an effect on the area's microclimate by reducing the amount of evapo-transpiration from the vegetation in the area which are also a GHG sink. The microclimate will also be modified by the project's heat producing activities and equipment and machinery including vehicles, electronics, generators, water pumps, air conditioning etc.

The ESIA expert assessed the influence of the proposed project on climate change, the impacts of climate change and vulnerability within and around the proposed project area of influence and highlighted the possible adaptation and mitigation actions. The focus was on flora and fauna, population, biodiversity and water resources. Stakeholder Engagement and consultation with neighboring businesses and other stakeholders was done to understand specific climate-related concerns. Vulnerability assessment baselines were determined by observation and feedback from stakeholders on which parts of the environment and society are most vulnerable to climate change.

With regards to climate change impact assessment, both direct and indirect impacts were determined by both literature review and stakeholders view on how climate change may directly or indirectly affect the project, and how the project may exacerbate or mitigate local vulnerabilities. Analysis was done to ascertain the effect of climate change scenarios and understand how they might interact with the project.

9.3 Kenya Climate

Kenya's climate is highly diverse, with variations primarily influenced by altitude. The highlands experience a moderate mean annual temperature of around 15°C, while the lowland areas in northern and eastern Kenya can reach temperatures as high as 29°C. In contrast, the coastal region and the shores of Lake Victoria in the far west enjoy a tropical climate, with temperatures typically ranging between 23°C and 27°C. Annual precipitation in Kenya varies significantly across the country, with amounts ranging from as low as 200mm in the arid northern and eastern regions, characterized by steppe landscapes, to more than 1,600 mm in the western areas. The highland regions of Kenya experience a more moderate climate, with annual precipitation totals ranging

between 800 mm and 1,000 mm. Kenya has two rainy seasons (bimodal precipitation regime) – a major one from March to May and a minor one from October to December.

9.3.1 Projected Climate Changes

In response to rising greenhouse gas (GHG) concentrations, air temperatures over Kenya are projected to increase by 1.2 to 3.2°C (very likely range) by 2080, relative to the baseline year of 1876. The extent of this temperature rise will depend on the future GHG emissions scenario (Figure below). Compared to pre-industrial levels, median climate model projections indicate a temperature increase of approximately 1.4°C by 2030, and 1.7°C by both 2050 and 2080, under the low emissions scenario (RCP2.6). Under the medium to high emissions scenario (RCP6.0), median temperature increases are projected to reach 1.3°C by 2030, 1.6°C by 2050, and 2.2°C by 2080.

9.3.2 Very Hot Days

In line with rising mean annual temperatures, the annual number of very hot days (days with daily maximum temperature above 35°C) is projected to rise substantially and with high certainty, in particular over central and eastern Kenya. Under the medium/high emissions scenario RCP6.0, the multi-model median, averaged over the whole country, projects 25 more very hot days per year in 2030 than in 2000, 36 more in 2050 and 59 more in 2080. In some parts, especially in northern and eastern Kenya, this amounts to about 300 days per year by 2080.

9.3.3 Sea Level Rise

In response to globally increasing temperatures, the sea level off the coast of Kenya is projected to rise. Until 2050, very similar sea levels are projected under both emissions scenarios. Under RCP6.0 and compared to year 2000 levels, the median climate model projects a sea level rise by 10 cm in 2030, 21 cm in 2050, and 40 cm in 2080. This threatens Kenya's coastal communities and may cause saline intrusion in coastal waterways and groundwater reservoirs.

9.3.4 Precipitation

Future projections of precipitation in Kenya are less certain than those for temperature change, primarily due to the high natural year-to-year variability in rainfall patterns. Among the three climate models used for this analysis, one model predicts either no change or a slight decrease in mean annual precipitation under the RCP6.0 scenario, while the other two models project an increase under the same emissions scenario. For the RCP2.6 scenario, median model projections suggest a slight increase in precipitation towards 2030, followed by an overall decrease towards the end of the century. Under RCP6.0, however, the projected increase in precipitation is expected to intensify after 2050, with an estimated rise of 53 mm per year by the end of the century, compared to 2000 levels. Higher emissions pathways indicate an overall wetter future for Kenya, with increased rainfall likely in certain regions

In response to global warming, heavy precipitation events are expected to become more intense in many parts of the world due to the increased water vapour holding capacity of a warmer atmosphere. At the same time, the number of days with heavy precipitation events is expected to increase. This tendency is also found in climate projections for Kenya, with climate models projecting an increase in the number of days with heavy precipitation, from 7 days per year in 2000 to 9 days per year in 2080 under RCP6.0. Under RCP2.6, the number of days with heavy precipitation remains unchanged.

9.3.5 Nairobi City County Climate Change

Nairobi acknowledges both the current and future threats posed by climate change and the urgent need for targeted action at the city level. The Nairobi Climate Action Plan (CAP) is a direct response to this climate crisis, aiming to achieve its goals through a transformational approach. The plan focuses on leveraging the city's unique strengths and capacities while considering the broader context of regional and global climate challenges.

Results from the Nairobi City inventory indicated that, in 2016, the total greenhouse gas (GHG) emissions in Nairobi amounted to 4.7 million metric tons of CO2 equivalent (MtCO2e), which translates to approximately 1.2 tons of CO2 equivalent (tCO2e) per person. The transport sector was identified as the largest contributor to these emissions, accounting for a significant portion of the city's overall carbon footprint. This highlights the urgent need for targeted action in reducing emissions from transportation, which is a major driver of air pollution and climate change in Nairobi. Efforts to transition to cleaner and more sustainable transport systems will be crucial for reducing GHG emissions and achieving the city's climate goals.

Through the analysis of future climate projections and historical trends, three key climate hazards have been identified as prominent drivers of change in Nairobi: flooding and storms, extreme heat, and drought. A Climate Rapid Assessment (CRA) has further highlighted the potential impacts of these hazards, which may pose significant risks to the city's social, natural, and economic capital. These risks include damage to infrastructure, disruption of livelihoods, loss of biodiversity, and strain on water resources.

9.4 Climate Change Impacts to Key Sectors

9.4.1 Infrastructure

Climate change is projected to severely impact Kenya's transport infrastructure through extreme weather events like floods and droughts. High precipitation and temperatures will cause infrastructure damage, leading to increased maintenance costs. Since road transport is vital for agriculture, trade, and access to services, especially in rural areas, investing in climate-resilient road networks is essential. Additionally, road transport accounts for 99% of non-aviation transport GHG emissions in Kenya. Extreme weather events will have devastating impacts on human settlements and economic sites, particularly in densely populated urban areas like Nairobi and Mombasa. Informal settlements, which often lack stable infrastructure and are built in high-risk areas such as riverbanks and coastal zones, are especially vulnerable. These areas experience severe flooding, leading to loss of housing, water contamination, and even death. Residents, who typically have low adaptive capacity due to poverty and lack of infrastructure, are particularly affected. In Nairobi's Kibera settlement, for instance, over 50% of residents reported flooding during the 2015 rainy season, resulting in deaths, disease outbreaks, and destruction of property.

9.4.2 Ecosystems

Climate change is expected to significantly impact tropical ecosystems, though the exact extent remains uncertain. Rising temperatures, more frequent and intense droughts, and changing conditions are putting wetlands, river systems, and forests at risk of transformation. These changes can lead to habitat loss for both plants and animals, disrupt forest succession, and increase the spread of invasive species. Additionally, factors such as low agricultural production and population growth

may drive further agricultural expansion, leading to deforestation, land degradation, and forest fires, which will negatively affect biodiversity.

9.4.3 Agriculture

Smallholder farmers in Kenya face growing challenges due to the unpredictability of weather patterns caused by climate change. Since most crops rely on rainwater, yields are increasingly affected by erratic rainfall, while the limited use of irrigation (only 28% of the potential irrigated area in 2003) further exacerbates the situation. This is due to poor extension services, irrigation management, lack of credit, and technical equipment. The primary irrigated crops are vegetables, fruit, coffee, rice, and maize. The uncertainty in water availability projections translates into high variability in drought predictions. According to median projections, the national crop land area exposed to drought annually will only slightly increase due to global warming, though other models predict a much stronger rise. Under RCP6.0, the range of drought exposure for crop land widens from 0-0.8% in 2000 to 0-1.6% in 2080, with the very likely range increasing from 0-1.9% to 0-9.8%. Some models project a fivefold increase in drought exposure, while others show no change. Climate change will have a negative impact on yields of millet and sorghum.

9.4.4 Water Resources

Current projections of water availability in Kenya show high uncertainty, with median models suggesting an increase under RCP6.0 and no change under RCP2.6. However, when factoring in population growth (SSP2 projections), per capita water availability is projected to decline significantly by 73% under RCP2.6 and 63% under RCP6.0 by 2080, compared to 2000 levels. While population growth is the primary driver, these projections emphasize the need for investment in water-saving measures. Regional projections show varying trends: under RCP2.6, water availability will decrease by up to 25% in western Kenya and increase by up to 25% in southern Kenya by 2080. Under RCP6.0, the focus shifts to eastern Kenya, where water availability is expected to increase by up to 80%.

9.5 Green House Gas Emission Sources and projected emissions estimates for the proposed Office development

The climatic and environmental impact of construction works is well recognized, and in particular, the energy use and carbon emissions associated with both their production (embodied energy/carbon) and their lifetime operation (operational energy/carbon).

Specific, quantifiable data on embodied carbon for office buildings in Kenya is not readily available, but efforts are underway through organizations like the Kenya Green Building Society (KGBS) to promote low-carbon materials and sustainable construction practices to reduce these emissions. The Institute of Quality Surveyors of Kenya (IQSK) and the World Resources Institute (WRI) are also involved in developing strategies and tools for decarbonizing the built environment in Kenya, with pilot projects and roadmaps for reducing embodied carbon emission.

United Nations Framework Convention on Climate Change (UNFCCC) which is operationalized by the Kyoto Protocol indicates that GHGs include; carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphury hexafluoride (SF6) The calculation of GHG emissions is considered to be a good index of the total effect of energy usage on

the environment. Conventional construction methods are environmentally unfriendly due to the large resource consumption, waste production, and GHG emissions. The carbon emissions attributed to buildings are considered a leading factor in global warming. With the emergence of the concept of sustainable construction and development, the construction industry is keen to limit its greenhouse gas (GHG) emissions, since it is the leading contributor that produces the global GHG emissions.

The energy associated with the life cycle of buildings and other constructions is broadly classified into two categories: embodied energy (EE) and operational energy (OE). Incorporating mass-timber, renewable energy, life-cycle modeling, and green material strategies can drive significant GHG reductions. The proposed project will have a A Prime rated Diesel Generator to supplement power supply during blackouts in the operational phase. Diesel generators produce: Particulate Matter (PM), Volatile Organic Compounds (VOCs), Nitrous Oxide (NOx) among other harmful pollutants that create smog and exacerbate respiratory conditions. However, technologies like Selective Catalytic Reduction (SCRs) and Diesel Particulate Filters (DPFs) are recommended to help improve their emissions. Incorporating mass-timber, renewable energy, life-cycle modeling, and green material strategies can drive significant GHG reductions.

9.5.1 Estimated Emissions from the Construction Phase

Greenhouse gas (GHG) emissions in the construction phase primarily stem from the manufacturing and transportation of building materials, particularly cement, steel, and aluminum, and the energy consumption of on-site construction equipment, which includes fuel use. Other contributing factors include the energy required for processing raw materials, the disposal of construction waste, and the processing of other resources used during construction.

The energy consumed by the construction sector has been estimated to be around 40% of total global energy consumption and 50% of CO_2 emissions. Construction and buildings thus represent one of the largest challenges for a low-carbon future.

9.5.1.1 Embodied Carbon

Embodied carbon includes emissions from material production, transportation, on-site construction, and eventually maintenance and demolition. The building and construction sector globally accounts for 37% of energy-related emissions, and the embodied carbon in materials like cement have a significant carbon footprint (UNEP, 2023). The production of materials like cement, steel, and aluminum is a major source of emissions, sometimes accounting for over 90% of a building's total embodied carbon.

Considering regional context, Kenya's reliance on reinforced concrete for high-rise construction, a realistic embodied carbon estimate lies in the 23,000 to 29,000 tonnes CO_2e range. Even in less efficient designs, going up to 46,000 tonnes CO_2e is unlikely unless exotic, heavy-material specifications are used. Typical embodied carbon for office buildings are estimated to range between **500–1,000 kg CO_2e/m^2.** {*Business Bliss Consultants FZE. (November 2018)*}

Embodied Carbon Calculation

- Lower estimate (using ~500 kg/m^2): 46,449 m^2 × 600 kg = 23,225 tCO_2e

- Upper estimate (using ~1,000 kg/m^2): 46,449 m^2 × 1,000 kg = 46,449 tCO_2e

The proposed project will use the lower estimation for embodied carbon due to the EDGE Certification of the building design that has integrated the use of low carbon materials.

9.5.1.2 Transportation:

Transporting workers to the site, transportation of materials to the construction site, as well as the global supply chains of raw materials, also contribute to emissions.

a) Emissions from transportation of workers

- With approximately **500 workers/day** commuting over the **construction phase (estimated 24 months)**.
- Average round trip**: 20 km/day** (Nairobi urban/suburban commute).
- Average fuel consumption for minibus/van/taxi: **8 liters/100 km**.
- Emission factor for diesel: **2.68 kg CO_2/litre** (IPCC standard).
- Assuming **85% of workers use shared transport (matatus)**, **15% use private vehicles**.

Total Worker Travel Distance:

500 workers ×20km ×5 days/week×4.33weeks/month×24months≈1,039,200km

Cars:

- 75 workers×20km×5×4.33×24=155,880km
- **Fuel** =155,880/6 = 4,330 Liters

Buses:

- 425 workers×20 km×5×4.33×24=883,320 km
- Assuming shared occupancy (~15 workers/van), total = 58,888 **van-trips**
- **Fuel** = 883,320/15÷6km/litres = 9,815 litres

Total Emissions (CO_2e)

- **Cars**: 4,330 litres × 2.68 = **11,604 CO_2e (11.6 tCO_2e)**
- **Vans/Matatus**: 9,815 litres × 2.68 = **26,304 CO_2e (26.3 tCO_2e)**

b) Emissions from Transportation of Construction Materials

Estimations:

- Total construction materials are estimated at 1,500–1,800 kg/m^2 GFA
  → 46,449 m^2 × 1,800 = ~83,608,200 kg = 83,608 tonnes
- Average trip distance: 60 km (from suppliers around Nairobi,)
- Transported by 20-tonne trucks, fuel consumption: ~35 litres/100 km
- Emission factor (diesel): 2.68 kg CO_2/litre

Step 1: Total Truck Trips

- Total tonnes / Truck capacity = 83,608 / 20 = 4,180 trips
- Each trip: 60 km (round-trip average)

Step 2: Total Fuel Consumption

- Distance: 4,180 trips × 60 km = 250,800 km
- Fuel = 250,800 km × 35 litres/100 km = 87,780 litres

Step 3: Emissions

- 87,780 litres × 2.68 kg CO_2/litre = 235,258 kg CO_2e = 235.3 tCO_2e

Total Material Transport Emissions: ~235.3 tCO_2e

Table 9-1 Summary of estimated emissions from the Transport sector

Type of activity	Estimated Emissions
Total Transport Emissions for workers with cars	**11.6 tCO_2e**
Total Transport Emissions for workers using public transport	**26.3 tCO_2e**
Total Material Transport Emissions	**235.3 tCO_2e**
Total Emissions from Transportation	***291.2 tCO_2e***

9.5.1.3 Equipment Fuel Consumption

The energy used by construction machines such as excavators and other heavy machinery, is a significant contributor to GHG emissions. While Kenya-specific data isn't readily available, below is an estimate using global benchmarks and construction emission modeling.

Below are the estimated equipment specific emission factors for construction equipment's to be used.

- *Excavators (~≤ 1 m^3 capacity): ~199 kg CO_2 per shift*
- *Bulldozers (~≤ 75 kW): ~157 kg CO_2 per shift*
- *Crane (~≤ 15 t crawler): ~123 kg CO_2 per shift*
- *Dump trucks (~≤ 12 t): ~194 kg CO_2 per shift*

If we conservatively assume:

- **200 construction shifts per equipment type** (e.g., 200 shifts each for excavators, bulldozers, cranes, trucks), and
- Average emissions **~150–200 kg CO_2 per shift**, per equipment type,

  Calculation:

  - 200 shifts × 200 kg = 40,000 kg = 40 tonnes CO_2 per equipment type.
  - With 4 main equipment types, that totals to approximately ***160 tonnes CO_2***

9.5.1.4 Construction Waste

The disposal of construction waste can lead to the release of greenhouse gases, contributing to the overall carbon footprint of a project. According to global construction data, approximately 15% of materials delivered to a site go unused due to damage, over-ordering, mistakes, or other losses.

Typical embodied carbon figures for office tower construction range between 341–631 kg CO_2e per m^2 of Gross Floor Area, excluding waste. Industries however often assume **0.1 to 0.2 tonnes of waste per m^2** of gross floor area for new builds. With the estimated construction waste being 15% of the gross floor area for the proposed office tower, the estimated waste would be ***0.15 t/m^2 *46,449M^2 = 6,967 tonnes.***

Using a mid-range emission factor, recognizing the waste mix—assuming unsorted mix, the Mid-range emission factor would be 0.5 kg CO_2e per kg (i.e., 0.5 tonnes per tonne)

Calculation: 6,967 tonnes × 0.5 tCO_2e/tonne = 3,483 tonnes CO_2e

Table 9-2 Estimated emissions from the construction phase

Type of activity	Estimated Emissions
Embodied Carbon	**23,225 tCO_2e**
Transportation of workers to and from the site	**37.9 tCO_2e**
Total Material Transport Emissions	**235.3 tCO_2e**
Construction Equipment	***160 tonnes CO_2***
Construction Waste	***3,483 tCO_2e***
Total Emissions from Construction phase	***27,432.4 tCO_2e***

9.5.2 Estimated Emissions from Operational Phase

Operational energy for heating, cooling, lighting and other purposes through a building's lifetime has, until recently, comprised by far the greatest part of energy use and emissions. However, as lifetime operational impacts diminish and even approach zero in energy-efficient and low-impact buildings, the embodied impacts of materials and construction. Operational emissions typically comprise about 28% of global building energy-related CO_2 emissions, while materials and construction account for roughly 11%.

9.5.2.1 Sources of emissions

Potential sources of emissions in the operation phase include:

a) **Energy Consumption for Building Services:** Electricity for lighting, appliances, and plug loads: This includes all power used for everyday office functions—lights, laptops, printers, copiers, vending machines, etc.
b) **Heating, Ventilation & Air Conditioning (HVAC**): HVAC systems often represent the largest single contributor to operational emissions, especially in high-rise buildings**.**
c) **Fuel Consumption:** Onsite emissions from fuel combustion from diesel backup generators and any owned vehicle fleets by TRIFIC.

9.5.2.2 Estimate Annual Energy Use

Using the **Energy Use Intensity (EUI)** for office buildings:

- Global average for conventional office buildings: **150–300 kWh/m²/year** (Source: IEA, ASHRAE)
- For efficient buildings the energy estimate ranges from 100–150 kWh/m²/year
- Nairobi climate (mild tropical highland) allows **lower cooling loads** than Gulf or EU countries. Additionally, considering the design of the proposed office tower (EDGE Certification for green buildings, we will use an average of **150 kWh/m²/year**

Total energy use = *GFA × EUI (46,449 m^2 × 150 kWh/m^2) =6,967,350kWh/year (or 6.97 GWh/year).*

Kenya's electricity mix is relatively clean thanks to hydro, geothermal, and wind power. Kenya's current electricity grid emissions factor is 0.106 kg CO_2e/kWh (Source: IEA 2023)

Calculation of Emissions: (6,967,350kWh/year *× 0.106 kg CO_2e/kW) = 738,539.1 kg CO_2e/year which is equivalent to 738 tonnes CO_2e/year.

*With an estimated life span of 50 years , the total operational carbon footprint of the building maintains similar energy patterns over time will be (**738 tonnes CO_2e/year *50 years) = 36,900 tonnes CO_2e.***

Table 9-3 Total Emissions for the proposed project

Project Phase	***Estimated GHG Emissions***
Construction Phase	*27,432.4 tCO_2e (One time)*
Operation Phase (50-year)	*36,900 tCO_2e (738 tCO_2e/year × 50)*
Total to Offset (50-year)	***64,332.4 tCO_2e***

9.6 Proposed Measures to Offset Emissions

9.6.1 Use Low-Carbon Materials

GHGs come from all life-cycle phases of a building. GHG emissions sources in the construction stages range from construction supplies, fabrication and transportation, construction equipment, energy usage, workers transportation, and waste emissions from the construction works. The production

and use of materials such as cement, steel, and aluminum have a significant carbon footprint. The proposed project is expected to use the following equipment that are likely to emit Green House Gases: Compacting equipment, conveying equipment, earth-moving equipment, excavation equipment among others.

9.6.1.1 Mitigation Measures

The proposed development will incorporate the use of locally available masonry stones, concrete blocks, coral stone and timber; low VOC paints, recycled materials and sustainable wood products. The project will adopt efficient construction methods, including the use of prefabrication or modular components where feasible, to reduce material wastage and on-site energy use. Additionally, construction activities will be scheduled to optimize equipment utilization and minimize idling time, thereby reducing fuel consumption and associated greenhouse gas emissions. These practices not only lower the carbon footprint of construction activities but also enhance overall site productivity and environmental compliance.

The proponent is advised to consider switching to blended cement, such as PPC or CEM II/B, as well as geopolymer concrete, can be used to lower emissions during construction. Reusing steel or choosing low-carbon steel like that produced via electric arc furnace methods also helps reduce environmental impact. Additionally, applying concrete with high slag or fly ash content is effective. These combined measures have the potential to cut construction emissions by 15–30%, equivalent to 3,000–9,000 tonnes of CO_2e.

9.6.2 Passive Design Strategies and Efficient Equipment & Controls

The Consultant carried out this assessment mainly by evaluating the energy needs across the project life cycle, possible sources of the required energy, possible measures and appropriate technologies to lower or minimize energy consumption. The consultant also relied on the understanding of the design of office development. The construction of the project will be a net generator of greenhouse gas. Construction vehicles and equipment will generate greenhouse gases due to the burning of fossil fuels and clearing of vegetation which will result in the loss of sequestering capacity for carbon dioxide.

Passive design strategies include incorporating daylighting, solar shading, and natural ventilation, as well as applying high-performance glass and insulation to buildings. The implementation of efficient equipment and controls, such as LED lighting, motion sensors, daylight dimming technologies, and variable speed drives on HVAC systems and pumps, along with the integration of advanced Smart Building Management Systems (BMS), can greatly enhance building operations. A Building Management System (BMS) will be integrated to optimize the performance of mechanical, electrical, and plumbing systems in real time, aligning with energy management measures proposed in the ESIA report. These strategies are estimated to achieve a 20–40% reduction in annual operational emissions. Over a 50-year period, these measures can yield total emissions savings of approximately 10,000–20,000 tCO_2e

9.6.2.1 Adaptation Technologies Employed by the Proponent to Reduce Energy Consumption and Emissions

The proponent will put in place the following measures in a bid to reduce energy consumption:

- LED lighting and lighting controls will be installed thus saving up to 50% of energy on lighting.
- Use of mechanical ventilation system with EC/VFD fans thus consuming less energy
- Automation of HVAC system responding to load demand.
- Use of VFD pumps for potable water.
- Use of sensor-controlled lighting system.
- A Building Management System (BMS) for Mechanical, Electrical and Plumping (MEP) systems monitoring and operation optimization will be installed.
- A solar PV plant and all associated installations shall be installed at the roof of the proposed development. The generated power shall then be evacuated and fed into the central Two Rivers Power Company grid system.
- A Building Management System (BMS) for Mechanical, Electrical and Plumping (MEP) systems monitoring and operation optimization will be installed.

9.6.2.2 Mitigation Measures

Construction Phase

- Integrate the use of the natural lighting in the project design;
- Ensure use of clean fuels in vehicles and machinery;
- Switch off engines for vehicles and machinery when not in use;
- Revegetate all areas safe from any development works at the site with local vegetation to increase local sequestering capacity for greenhouse gases.
- All construction machinery should be regularly and promptly maintained and serviced in accordance with the manufacturer's specifications to minimize the generation of hazardous gases;
- Fueled construction equipment to be used where feasible with environmentally friendly fuels such as low-sulphur diesel;
- All raw materials where possible must be sourced as close as possible to the construction site thus reducing emissions from vehicular traffic;
- Embrace modern construction technology that suppresses hydrocarbons emissions;
- Regularly monitor (quarterly) air quality levels to ensure compliance with Environmental Management and Coordination (Air Quality) Regulations, 2024. The measurements should be done at different weather and seasons to ensure that all the weather patterns are taken into consideration during the monitoring process.

Operational Phase

- Maximize the use of natural lighting in the facility.
- Consider the use of sensors to monitor HVAC systems to save on time and reduce maintenance requirements.
- Use of sensor-controlled lighting system.

- Use of unleaded premium petroleum products that release less harmful substances into the atmosphere.
- Use of generators with low emissions and ensure regular maintenance & servicing of generators to reduce emissions;
- Conduct Annual Stack emission monitoring and testing for the generators.
- Apply for and obtain an Air Quality emission License for the generator.
- Adhere to all the provisions of EMCA (Air Quality) Regulations, 2024, regarding management of air emissions such as limiting emissions to permissible levels and standards

c) Install Rooftop Solar PV

Nairobi receives around 5.5 to 6.0 kWh/m^2/day of solar radiation, making rooftop and partial façade photovoltaic systems capable of supplying between 15% and 30% of a building's energy needs. The estimated annual savings from these systems range from 150 to 300 MWh, which is equivalent to preventing 16 to 32 tonnes of CO_2 emissions each year. Over a projected period of 50 years, this could result in approximately 800 to 1,600 tonnes of CO_2e emissions avoided.

d) Green Procurement & Carbon-Neutral Construction

The project will prioritize the use of low-carbon cement blends and incorporate recycled aggregates where technically feasible to significantly reduce embodied carbon in concrete works. Additionally, there will be a strong preference for locally sourced construction materials, including steel, timber, aggregates, and manufactured products, to minimize transportation-related emissions. This approach not only lowers the carbon footprint of material supply chains but also supports local economic development.

The proponent should consider utilizing carbon-neutral or EPD-certified materials and offsetting construction emissions through methods such as using biofuels or electric machinery. Additionally, certified local offsets, such as reforestation projects, may be purchased to further reduce the environmental impact.

e) Nature-Based Carbon Offsets

Offset residual emissions through Tree Planting & Forest Conservation. TRIFIC can Partner with organizations like Kenya Forestry Research Institute (KEFRI), Green Belt Movement, or Wildlife Clubs in Kenya. An annual tree planting programme of planting at least 1,000 indigenous trees within Nairobi County urban reforestation sites is proposed for consideration.It is projected that these trees can sequester approximately 45,000 tonnes of CO_2 equivalent over a 30-year period, based on an assumed survival rate of 85–90% and average sequestration rates of approximately 0.1 tCO_2e per tree per year at maturity. This initiative also contributes to Kenya's 15 Billion Trees Initiative and enhances local biodiversity and ecosystem resilience

f) Green Building Certification

The proponent has pursued a green building certification with EDGE, globally recognized green building standard from the World Bank Group's IFC that provides a metrics-driven approach to certifying resource-efficient buildings. The proposed building designs have incorporated a minimum

of 20% savings in energy, water, and embodied energy in materials thus offering increased sustainability achievements.

9.6.3 Water Efficiency and Emission Reduction:

The Consultant carried out this assessment mainly by evaluating the water needs across the project life cycle, water sources, possible measures and appropriate technologies to lower or minimize water consumption. The construction phase of the project will entail the use of large amounts of water usage. The operational phase will even require consumption of larger amounts of water usage in cleaning, flushing toilets and irrigation for the landscaped areas. The proponent intends to source it's supply from Two Rivers Water and sanitation Company waste water treatment plant supplemented by the three operational boreholes.

The proponent will look at reducing water consumption and associated energy-related carbon emissions by installing low-flow sanitary fixtures and sensor-based taps throughout the development. These measures will reduce both water use and the energy required for water pumping, treatment, and heating—key contributors to operational carbon emissions. To further reduce the building's indirect carbon footprint, rainwater harvesting and storage systems will be considered to provide water for landscaping and other non-potable uses, thereby decreasing reliance on energy-intensive mains water supply.

9.6.3.1 Adaptation Measures Employed by the Proponent to Reduce Energy Consumption

- Two Rivers Water and sanitation Company has an already existing waste water treatment plant. All grey water shall be channelled to the waste water treatment plant. Recycled water will be used to flush toilets with low flush sanitary fittings and to irrigate the landscaped areas.
- Efficient plumbing fixtures shall be employed to comply with EDGE requirement in terms of water conservation. This will include the installation of water efficient fittings and equipment's and water efficient irrigation systems.

9.6.3.2 Mitigation Measures

- Incorporate adequate water storage tanks for a sustainable and consistent supply of water within its premises;
- Plant native plants that require less water and maintenance, use water efficient irrigation systems and construct smaller and shallower water features that minimize water evaporation and run off.
- Identify activities and departments that consume high amounts of water and electricity and take appropriate measures to reduce consumption;
- Install a discharge meter at the various water outlets to monitor water use;
- Consider harvesting of rain water;
- Sensitization of staff and tenants on efficient water use.

9.6.4 Waste Reduction

Solid waste will consist of construction debris, cement bags, wood, broken glasses, containers, metal, sharp objects such as nails, organic waste, paper, and plastic among others during the development's construction phase

The office tower is expected to generate enormous amounts of solid waste during its operation phase. These will include; waste papers, plastics, broken glass, kitchen waste, etc. The waste may accumulate to undesirable volumes if not segregated and disposed of regularly, thereby becoming a nuisance. The proponent intends to recycle and re-use plastic waste generated by the proposed office tower project operations.

The project will look at minimizing construction waste generation and landfill disposal by implementing measures outlined in this ESIA report. This will include proactive site waste segregation, identification and recycling of materials such as steel offcuts and concrete debris and establishing partnerships with licensed recycling companies to achieve a minimum 70% waste diversion rate. Additionally, the project will prioritize the reuse of any demolition debris within the site or at other approved construction locations where practicable, ensuring full compliance with NEMA waste management regulations and the ESIA mitigation commitments.

9.6.4.1 Adaptation Measures:

Spaces will be provided on site for separation of waste at source and recycling of all plastic wastes generated by the facility will be practiced. The appointed waste collection company will be awarded a contract on the basis that they collect the separated waste in trucks that maintain separation, and have an extensive sorting site. Plastic waste generated by the facility will be recycled and reused.

9.6.4.2 Mitigation Measures:

- Use of an integrated solid waste management system (i.e. through a hierarchy of options: Reduce, Reuse, Recycle and Dispose);
- Adopt waste reduction strategies at source such as using bulk dispensers for toiletries in addition to promoting reuse of textile materials;
- Undertake regular employee training programs to raise awareness about waste reduction and recycling practices;
- Perform regular waste audits to identify gaps in waste management and implement more efficient and cost-saving practices;

Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024 and Sustainable Waste Management Act,2022.

9.6.5 Flooding Risk

As drainage areas become increasingly impervious due to urban development, storm water runoff volumes, flows, and velocities increase, while base groundwater flows decrease. Rain water that would otherwise be “soaked” by the plants and soils is instead directed to drainage systems and nearby streams. Human activities in the city also generate increased pollutant loads, ranging from heavy automobile traffic to the use of various chemicals. These pollutants, as well as the deposition of atmospheric pollution from outside the city, build up on impervious surfaces during dry weather. Rain then “washes” these pollutants into the city’s drainage channels, streams, and rivers.

Excavation of soils to construct foundations may loosens soil which may be washed alongside any poorly disposed waste on site into storm drains, clogging them. The loose soil is also likely to increase sediment load in storm water. Together with the loss of flora, changing the characteristics of the project site from its present state to a more built state and changing the soil’s characteristics, will

lead to a change in the water regime at and around the project site. This is because the built areas will increase run-off while reducing the percolation of water into the ground and thereby also changing the sub-surface hydrology. By overloading the capacity of storm sewers, un-managed storm water runoff is responsible for increased combined sewer overflow events and adverse downstream impacts such as flash flooding, channel erosion, surface and groundwater pollution, and habitat degradation.

The slope of the proposed project site minimizes excavation and allows natural drainage. Stormwater drainage will be integrated into landscaping. The system is designed to prevent run-off from overwhelming the river and to avoid downstream flooding. A Flood Risk Assessment had been initially conducted, and highest water mark level was noted for reference in future developments. This has been taken into consideration in project design

9.6.5.1 Mitigation Measures

The design of the proposed office tower to be specific allows for water to seep back into the aquifer. The proposed office development will also have lots of green spaces to reduce surface runoff. The below additional mitigation measures are recommended to reduce surface runoff

- The drainage system should ensure that surface flow is directed suitably into the public drains provided to control flooding within the site;
- Installing cascades to break the impact of water flowing into the drains;
- Controlling earthworks and ensuring the management of excavation activities;
- Drainage channels should be installed in all areas that generate or receive surface water such as; car parking, driveways and along the building block edges of the roofs;
- The channels should be covered with gratings or other suitable and approved materials to prevent the occurrence of accidents and entry of dirt that would compromise the flow of run-off;
- The channels should be designed with regard to the peak volumes such as periods or seasons when there is a high intensity of rainfall;
- The drainage channels should ensure the safe final disposal of run-off /surface water and should be self-cleaning which means it should have a suitable gradient;
- Existing trees can be preserved, or new trees can be planted to reduce storm water runoff. Through the processes of evapo-transpiration and nutrient uptake, trees located on a development site have the capacity to reduce storm water runoff volumes and improve water quality. Further, through root growth, trees can improve the infiltration capacity of the soils in which they grow. Both tree planting and tree preservation can contribute to storm water management on a site.

9.6.6 Monitoring and Management:

The proponent shall develop an Environmental, Social, And Governance (ESG) strategy to tackle the office development's carbon footprint. The ESG strategy will encompass a carbon offset plan to address the inevitable carbon footprint stemming from the office operations. TRIFIC shall be required to publish and disclose an annual sustainability report. A robust monitoring and verification framework will be established to ensure transparency, credibility, and compliance with all carbon offset commitments.

The performance of solar PV installations will be monitored regularly to track electricity generation and associated emission savings. An annual carbon footprint and offset report will be prepared in alignment with ISO 14064 and GHG Protocol standards, providing comprehensive documentation of progress towards achieving net-zero emissions for both the construction and operational phases of the project.

This carbon offset plan integrates a comprehensive set of immediate mitigation measures, green building strategies, and long-term offsetting initiatives to achieve net-zero emissions for both the construction and operational phases of the proposed office tower project. By prioritizing low-carbon materials, waste reduction, energy and water efficiency, and renewable energy integration, the project effectively minimizes emissions at source. Additionally, extensive tree planting programmes and the procurement of certified carbon credits will ensure that residual emissions are fully offset in a manner that delivers both environmental and socio-economic co-benefits. This holistic approach demonstrates the project's leadership in climate-responsible and sustainable urban development, aligning with Kenya's Vision 2030 green growth agenda, the country's NDC commitments, and international best practices in low-carbon building design.

9.6.7 Conclusion

With regards to climate change mitigation and based on project activities, measures have been proposed on how to reduce the project's greenhouse gas emissions. Similarly, different adaptation strategies have been proposed to climate change proof the project and that the ecosystem/communities are resilient to future climate change impacts (e.g., designing infrastructure to cope with floods, drought or erratic rainfall).

A system for climate monitoring is recommended to monitor climate parameters and their changes over time. Based on monitoring results, the project strategies should address unforeseen climate change impacts. Regular updates and engagements with local business communities and other stakeholders about the findings and changes made in response to climate change have been recommended. Additionally, regular reviews have been recommended to assess the latest climate change data to ensure that the project can withstand the challenges of climate change and contribute positively to the resilience of both the environment and society.

10 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

10.1 Introduction

Environmental and Social Management Plan (ESMP) for developing projects is given to provide a logical framework within which identified negative environmental impacts can be mitigated and monitored. In addition, the ESMP assigns responsibilities of actions to various actors and provides a time-frame within which mitigation measures and monitoring can be done within budget.

10.2 The Environmental and Social Management Plan (ESMP)

Based on the policy outlined in the preceding sections, this ESMP has been developed to provide a basis for evaluation of the project with reference to environmental management regulations both locally and internationally for the life of the proposed project. Since key factors and processes may require change, considerable provisions have been made for dynamism and flexibility of these plans. As such the ESMP will be subject to a regular regime of periodic review.

The table below forms the basis of the ESMP for the construction and operational phases of the proposed project. In general, the ESMP outlines the potential safety, health and environmental risks associated with the project and details all the necessary mitigation measures as well as the person(s) responsible and the budgetary element for implementing and monitoring such measures. The ESMP will be used as a reference point in annual environmental audits.

10.3 Construction Phase Environmental and Social Management Plan

The purpose of the Environmental and Social Management plan is to ensure the proponent has a predetermined set of compliance guidelines to ensure that the project is carried out safely and; that environmental concerns and laid down guidelines are observed. It also ensures that social and environmental impacts and risks identified during the ESIA process are effectively managed during the construction phase of the Project. The ESMP specifies the mitigation and management measures to which the proponent is committed and shows how the project will mobilize organizational capacity and resources to implement these measures.

Table 10-1: ESMP for the Construction phase

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
Vegetation clearing	▪ Clearly delineate areas for land preparation/other activities in the field to prevent loss of vegetation outside of designated works areas ▪ Landscape and plant vegetation in all open areas after the completion of the project Introduction of vegetation (trees and grass) on open spaces and their maintenance. ▪ The contractor should develop a landscaping plan. ▪ Stabilize the excavated areas to prevent caving in of soil.	Contractor/ Proponent	Throughout the Construction Phase	200,000
Increased Noise and vibration generation	▪ Ensure that working times are within the permissible times as per NEMA Regulations. ▪ Noisy activities should be scheduled during less sensitive times. ▪ Implement the use of vibration-dampening technologies to minimize noise levels. ▪ Install sound-absorptive materials or acoustic barriers during construction to reduce the reflection and projection of impulsive sounds from the surrounding zones. ▪ Plan the site clearance and construction activities in consultation with the neighbors so that activities with the greatest potential to generate noise and vibration are scheduled accordingly. ▪ Clear and informative signage should be installed to identify noise-sensitive zones within the development. ▪ Utilization of equipment that has the lowest possible sound levels.	Contractor/ Proponent	Throughout the Construction Phase	1,440,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Ensure that all vehicles and construction machinery are well maintained and regularly serviced to avoid excessive noise generation. ▪ Provide appropriate protective gear including ear corks and ear muffs to all construction workers working in noisy sections and enforce application at all times during the construction works. ▪ Sensitization of staff and contractors to foster a culture of shared responsibility in managing noise impacts. ▪ Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use. ▪ Ensure contractors monitor the noise levels in compliance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.			
Increased Solid Waste Generation	▪ Use of an Integrated Solid Waste Management System (ISWMS); through a hierarchy of options including source reduction, recycling, composting and reuse; ▪ Comply with the National Waste Colour code i.e. Green for Organic Waste, Black for General Waste and Blue for Recyclable Waste ▪ Keep a record of data on the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, reused, recycled, recovered or disposed of (Waste tracking documentation) ▪ Efficient estimation and use of building material to reduce waste and recycling/reuse where feasible;	Contractor	Throughout the Construction Phase	1,500,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Ensure daily removal of solid waste materials from the construction sites to avoid unnecessary accumulation at the locations and ensure proper housekeeping; ▪ Engage the services of a NEMA Licensed waste handler to collect and transport waste to designated disposal sites. ▪ The contractor should consider dumping the excavated soils in abandoned quarries. ▪ Proper handling and disposal of hazardous waste. ▪ Choose environmentally sustainable building materials. ▪ Provide a central waste receptacle and mechanisms to segregate waste at source to enable recycling. ▪ Develop a comprehensive waste management plan. ▪ Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024.			
Increased Wastewater Generation	▪ Provision of sufficient sanitary facilities separate for both male and female and ensure they are well-maintained with adequate hand washing facilities. ▪ Water containing pollutants such as cement, concrete, lime, chemicals, and fuels to be discharged into a conservancy tank for removal from the site; ▪ Control of water usage during construction activities to minimize wastage; ▪ Fix leaking taps and pipes in record time; ▪ Contain and sustainably manage potential pollutants of any kind to ensure the water table is not endangered.	Contractor	Throughout the Construction Phase	1,680,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Promote recycling of wastewater and storm-water where feasible; ▪ Comply with the provisions of the Environmental Management and Coordination (Water Quality) Regulations, 2024			
Air Pollution	**Impacts due to Dust:** ▪ Regular sprinkling of water on work areas to prevent fugitive dust violations. ▪ Use of dust nets/screens around the construction site to contain and arrest dust ▪ Materials management and batching plants associated with the project should be designed for low dust and emissions; ▪ Minimize exposed areas through scheduling of construction activities to enable dust control; ▪ Onsite dirt piles or other stockpiled material should be covered, windbreaks installed, water and/or soil stabilizers employed to reduce wind-blown dust emissions; ▪ Enforce onsite speed limit regulations for construction vehicles along access routes; ▪ Restricting heights from which materials are to be dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading. **Impacts due to Vehicular Emissions:** ▪ All construction machinery should be regularly and promptly maintained and serviced in accordance with the manufacturer's specifications to minimize the generation of hazardous gases;	Contractor	Throughout the Construction Phase	960,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Drivers should be instructed on the benefits of driving practices that reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits; ▪ Discourage machine/equipment operators and drivers of construction vehicles from unnecessary revving and idling; ▪ Fueled construction equipment to be used where feasible with environmentally friendly fuels such as low-sulphur diesel; ▪ All raw materials where possible must be sourced as close as possible to the construction site thus reducing emissions from vehicular traffic; ▪ Regularly monitor (quarterly) air quality levels to ensure compliance with Environmental Management and Coordination (Air Quality) Regulations, 2024			
High Demand for Raw materials	▪ Source building materials from local suppliers who use environmentally friendly processes in their operations; ▪ Ensure accurate budgeting and estimation of actual construction material requirements to ensure that the least amount of material necessary is ordered; ▪ Ensure that damage or loss of materials at the construction site is kept minimum through proper use and storage.	Project manager & Contractor	Throughout the Construction Phase	No additional costs. Costs will be within the construction budget
Soil Erosion	▪ Site clearing or disturbance of the natural vegetation should be planned and approved as part of the project management process; ▪ Terracing and levelling the project site to reduce run-off velocity and increase infiltration of rainwater into the soil; ▪ Providing adequate road drainage based on road width, surface	Project Manager/Contractor	Throughout the construction phase	Covered under Construction budget

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	material, compaction, and maintenance; ▪ Providing effective short-term measures for slope stabilization, sediment control and subsidence control until long term measures for the operational phase can be implemented; ▪ Soils excavated should be used for re-filling and should not be left exposed to wind or water for long periods; ▪ Runoff loaded with sediment and other suspended materials from the site/working areas should be prevented from discharging to adjacent watercourses and/or water bodies. ▪ Prepare a restoration scheme to guide vegetation of areas cleared during construction comprising of indigenous species and to be rid of any invasive species; ▪ Banding the site to control run-off loaded with sediment and other suspended materials from the site to watercourses.			
Hazardous Material Spillage	▪ Raise awareness on the risks of oil spills and leakages amongst the workers; ▪ Refueling and maintenance of large vehicles should take place only at designated areas; ▪ All hazardous materials to be stored in appropriately banded containers and placed on concrete floors where applicable; ▪ Maintain spill response kits at the construction site at all times; ▪ Prepare and display on-site spill response procedures and train workers on spill response and management; ▪ The site design to incorporate oil sumps at the parking areas to isolate oil spills from parked vehicles that might spill into the storm drains;	Project Manager/ Contractor/ Environment Health and Safety Officer	Throughout the Construction Phase	No additional costs.

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ No solid waste, fuels, or oils shall be discharged on the land surface or into drains. ▪ All oil products and materials should be stored in site stores; ▪ Any wash-off from the oil/grease handling area or workshop shall be drained through impervious drains; ▪ Regularly check for leaks from paint containers; ▪ All machinery must be keenly monitored to prevent oil leaks on the ground. This can be affected through regular maintenance of the machinery. ▪ Maintenance and servicing of machinery must be carried out in a designated area (protected service bays) and areas where oils are completely restrained from reaching the ground. Such areas should be covered to prevent storms from carrying away oils into the soil or water systems.			
Increased Water Consumption	▪ Wherever possible, water should be recycled without compromising on quality and health; ▪ Ensure efficient use of water during construction by ensuring regular repair and replacement of broken or worn-out pipes and fittings; ▪ Identify activities and areas that cause high consumption and implement conservation practices; ▪ Put in place sound and sufficient water storage reservoirs that are leak-proof; ▪ Install water-saving devices in appropriate places such as flow regulators, self-closing taps; ▪ Provide neighbors with adequate notice regarding water connections disruptions etc.	Project Manager/ Contractor	Throughout the Construction Phase	Covered under Construction budget

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Ensure Compliance to the Water Act 2016, and Environment Management and Coordination Act (Water Quality regulations), 2024			
Traffic Impacts	▪ Adopt a Traffic Management plan and delivery management plan to enhance traffic movement within the site. ▪ Heavy Commercial Vehicles (HCVs) delivering construction materials should observe designated speed limits for the area; ▪ Minimize haulage and transportation of construction material during peak hours; ▪ Flagmen/traffic marshals should be deployed at the entrance to control traffic; ▪ Proper signage and warnings should be placed at strategic locations to direct traffic to minimize inconveniences to motorists and forewarn other motorists of HCVs turning and transportation of abnormal loads; ▪ Construction activities should be done within the confines of the construction area. Ensure the construction doesn't occupy road reserves and complies with the Traffic and land demarcation obligations; ▪ Enough parking spaces should be provided for the vehicles transporting workers and heavy trucks offloading the construction materials; ▪ The selection of construction areas shall be based on the existing road layout and the location of access to the various commercial and residential properties; ▪ Ensure maintenance of access roads to the site and repair of any damage caused by trucks.	Contractor/ Project Manager	Throughout the construction phase	No additional costs. Covered under Construction budget

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Any change in the normal programming of activities that will significantly disrupt normalcy along the abutting project roads should be timely communicated.			
Damage to existing Infrastructure	▪ Map all utility Infrastructure located within or near the project site before commencement of excavation works; ▪ Liaise with the Nairobi City County Government to ensure safe removal of underground utility infrastructure at the proposed project site during excavation works; ▪ The contractor should maintain access roads and repair damages to infrastructure; ▪ Inform users of planned service interruptions sufficiently ahead of time for them to put in place strategies to mitigate the consequences of the interruptions.	Contractor/ NWSC/KPLC	Throughout the construction phase	Covered under Construction budget
Increased energy demand	▪ Switch off engines when not in use. ▪ Use well serviced construction machinery that is efficient in fuel consumption. ▪ Maximize the use of natural lighting by limiting construction works to daytime. ▪ Create awareness among workers on the importance of conservation of energy resources. ▪ Employ technologies that demand less energy consumption. ▪ Repair or replace any faulty equipment with more efficient and economical alternatives. ▪ Utilize electricity meters to monitor energy consumption subject to coordination with the energy optimization consultant and identify areas that higly consume energy in order to forestall appropriate energy conservation measures.	Contractor	Throughout the construction phase	Covered under Construction budget

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Use energy saving lighting systems			
Water Pollution	▪ Adhere to the demarcated riparian land and ensure no construction activities are undertaken at the riparian reserve. ▪ Ensure all construction materials and debris are properly disposed of to avoid discharge into the nearby River Gichii. ▪ Precautionary measures should be taken to prevent wastewater from being discharged into the environment, particularly during heavy rainfall periods when the risk of run-off is amplified. ▪ Ample facilities should be provided to the workers as per good practice standards requirements and the generated wastewater should be discharged into the right channels, to minimize the risk of discharge into the environment. ▪ Liquid waste from construction activities should be disposed of in an environmentally sound manner to minimize the risk of discharge into the river. ▪ Construction materials and spoils should be stored away from the water body to prevent the risk of leakage. ▪ Construction vehicles, machinery and equipment should be parked or stored away from the river riparian to ensure spillage of petroleum-based products does not run-off. ▪ Ensure construction activities adhere to the Environmental Management and Coordination (Water Quality Regulations), Regulation, 2024 and the (Water Resources) regulations 2025	Contractor/Proponent	Throughout the construction phase	Covered under Construction budget
Insecurity	▪ The contractor should conduct due diligence on potential employees and require police clearance for laborers; ▪ Secure the site and have security personnel manning the site; ▪ Hire services of a security firm to monitor personnel or visitor movement within and close to the site;	Contractor/Project Manager	Throughout the construction phase	3,600,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Formulate and instill a place of work conduct; ▪ Ensure every construction staff biodata is well captured.			
Increased Storm Water and Surface Runoff	▪ Develop and implement a Storm Water Management Plan (SWMP) incorporating silt traps, sediment ponds, and oil–water separators to ensure all runoff is treated before discharge. ▪ An effective storm water drainage system should be installed on the site to lead away all water from the foundation areas without allowing any water pond. ▪ The drainage system should ensure that surface flow is directed suitably into the public drains provided to control flooding within the site; ▪ Installing cascades to break the impact of water flowing into the drains; ▪ Controlling earthworks and ensuring the management of excavation activities; ▪ Drainage channels should be installed in all areas that generate or receive surface water such as; car parking, driveways and along the building block edges of the roofs; ▪ The channels should be covered with gratings or other suitable and approved materials to prevent the occurrence of accidents and entry of dirt that would compromise the flow of run-off; ▪ The channels should be designed with regard to the peak volumes such as periods or seasons when there is a high intensity of rainfall;	Project Architects/Contractor/Project Manager	Throughout the construction phase	Covered under Construction budget

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ The drainage channels should ensure the safe final disposal of run-off /surface water and should be self-cleaning which means it should have a suitable gradient; ▪ Trees can be planted to reduce storm water runoff.			
Community Safety and Health Risks	▪ Establish a communications desk within the project site where all concerns can be recorded to ensure a continued engagement between the proponent and the community. ▪ Ensure continuous engagement with the community to identify community risks as a result of the development. ▪ Immediate neighbours and other stakeholders should be sensitized on the dangers and risks associated with the construction works for enhanced self-responsibility on personal safety; ▪ Disabled access features and safety signage should be placed strategically around and within the site; ▪ Limit the movement of workers and contractors to within project-defined areas and designated traffic and transport routes or locations; ▪ Control access to the site and implement a permit system for vehicle access for the duration of construction; ▪ The contractor should comply with the provisions of: OSHA, 2007; Public Health Act Cap 242; Public Roads and Roads of Access Act Cap 399; Traffic Act Cap 403; and the Kenya Roads Act, 2007;	Contractor	Throughout the construction phase	2,400,000
Labor and Working Conditions	▪ The Project's Contractor HR policy, labor management principles, and procedures will include provisions to ensure	Contractor	Throughout the	No additional costs

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	strict adherence to the principles of equal opportunity nondiscrimination and fair treatment. ▪ Develop and implement a formal workers' Grievance Mechanism for all direct and subcontracted employees that will follow legal requirements of Kenya and align with good international practice. ▪ Monitor the effectiveness of the employee grievance mechanism on regular basis. ▪ The contractor's HR policy and labor management principles will explicitly state that forced labor and child labor will not be tolerated under any circumstances. ▪ The HR policy will outline specific measures to ensure that both the contractor and its subcontractors comply with these principles, including regular monitoring, audits, and enforcement mechanisms to prevent violations.		construction phase	
Gender Based Violence	▪ Establish workers' safety committee which will include at least one trained female worker representative. ▪ Develop and implement a workers' code of conduct, including GBVH policies, and mandatory training of all workers on sexual harassment and GBVH protocols.	Contractor	Throughout the construction phase	No additional costs
Occupational Health and Safety risks				
Approval of building plans	▪ Ensure that all building plans are approved by the Local Authority and the local Occupational Health and Safety Office.	Proponent	One-off	As per DOSH county office invoice.

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
Registration of the premises	▪ Registration of the premises as a workplace under the Occupational Safety and Health Act, 2007 Laws of Kenya is mandatory.	Proponent	One-off	6,050
General register	▪ A general register should be kept within the facility as stipulated in Section 122 & 123 of the Occupational Safety and Health Act, 2007.	Project Manager & Contractor	One-off	2,500
Posting of abstract of Act, rules and notices	▪ There shall be displayed at prominent places within the site the prescribed abstract of the OSHA and the relevant notices as stipulated in section 121 of the OSHA, 2007.	Project Manager & Contractor	One-off	1,500
Approval of building plans	▪ Ensure that all building plans are approved by the Local Authority and the local Occupational Health and Safety Office.	Proponent	One-off	As per DOSH county office invoice.
Fire Safety	▪ Install Appropriate firefighting Equipment. ▪ Designate a Fire Assembly point within the premises. ▪ Train workers on Fire Safety. ▪ Conduct regular fire drills.	The Contractor, Project Manager& Site Safety Officer	Continuous	Covered under Construction budget
Incidents, accidents and dangerous occurrences	▪ Ensure that provisions for reporting incidents, accidents and dangerous occurrences during construction using prescribed forms obtainable from the local Occupational Health and Safety Office (OHSO) are in place.	Project Manager, Developer & Contractor	Continuous	Covered under Construction budget
	▪ Enforcing adherence to safety procedures and preparing a contingency plan for accident response in addition to safety education and training shall be emphasized.	The Contractor, Project Manager& Site Safety Officer	Continuous	Covered under Construction budget

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
Insurance	▪ Ensure that the premises are insured as per statutory requirements (third party and workman's compensation)	Proponent	Annually	Covered under Construction budget
Safety, health and environment (SHE) policy	▪ Develop, document and display prominently an appropriate SHE policy for construction works	Project Manager & Contractor	One-off	5,000
Health and safety committee	▪ Provisions must be put in place for the formation of a Health and Safety Committee, in which the employer and the workers are represented.	Project Manager	One-off	Covered under Construction budget
Welfare of Workers	▪ Provide wholesome drinking water for employees	Project Manager & contractor	Continuous	
	▪ Provision of appropriate PPES to all workers.			
	▪ Provide suitable, efficient, clean, well-lit and adequate sanitary conveniences for construction workers.	Project Manager & contractor	One-off	
Medical examination	▪ Arrangements must be in place for the medical examination of workers working in hazardous areas before and after the project.	Project Manager, Developer & Contractor	Continuous	2,000 per examination for each worker
Machinery/equipment safety	▪ Ensure that machinery, equipment, personal protective equipment, appliances and hand tools used in construction do comply with the prescribed safety and health standards and be appropriately installed maintained and safeguarded.	Project Manager, Developer & Contractor	One-off	Covered under Construction budget

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Ensure that equipment and work tasks are adapted to fit workers and their ability including protection against mental strain.	Project Manager, Developer & Contractor	Continuous	
	▪ All machines and other moving parts of equipment must be enclosed or guarded to protect all workers from injury.	Project Manager & contractor	One-off	
	▪ Arrangements must be in place to train and supervise inexperienced workers regarding construction machinery use and other procedures.	Project Manager & contractor	Continuous	
	▪ Equipment such as fire extinguishers must be examined by a government authorized person. The equipment may only be used if a certificate of examination has been issued.	Project Manager & Contractor	Continuous	
	▪ Reports of such examinations must be presented in prescribed forms, signed by the examiner and attached to the general register	Project Manager	Continuous	
Storage of materials	▪ Ensure that materials are stored or stacked against safe walls and partitions in such manner as to ensure their stability and prevent any fall or collapse	Project Manager& contractor	Continuous	Covered under Construction budget
Safe means of access and safe place of employment	▪ All floors, steps, stairs and passages of the premises must be of sound construction and properly maintained.	Project Manager & Contractor	Continuous	Covered under Construction budget
	▪ Securely fence or cover all openings in floors	Project Manager & Contractor	One-off	

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
	▪ Ensure that construction workers are not locked up such that they would not escape in case of an emergency	Project Manager & Contractor	Continuous	
	▪ All working in height platforms used in construction works must be of good construction and sound material of adequate strength and be properly maintained.	Project Manager & Contractor	One-off	
Emergency preparedness and evacuation procedures	▪ Design suitable documented emergency preparedness and evacuation procedures to be used during any emergency.	Project Manager & Contractor	One-off	
	▪ Such procedures must be tested at regular intervals.	Project Manager & Contractor	Every 3 months	20,000
	▪ Develop & publicize an emergency response plan	Project Manager & Contractor	One-off	Covered under Construction budget
	▪ Ensure that adequate provisions are in place to immediately stop any operations where there is an imminent and serious danger to health and safety and to evacuate workers	Project Manager & Contractor	One-off	Covered under Construction budget
	▪ Ensure that current emergency telephone contact numbers are prominently and strategically displayed on posters within the construction site.	Project Manager & Contractor	One-off	5,000
	▪ Provide measures to deal with emergencies and accidents including adequate first aid arrangements.	Project Manager & Contractor	Continuous	Covered under Construction budget
	▪ Design suitable documented emergency preparedness and evacuation procedures to be used during any emergency.	Project Manager & Contractor	One-off	

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs) (24 Months)
First Aid	▪ Provide well-stocked first aid boxes which is easily available and accessible within the premises.	Project Manager & Contractor	One-off	250,000
	▪ Provision of first aid room or emergency room with a trained and qualified nurse within the construction site	Project Manager and Contractor	Throughout construction phase	2,400,000a
Environmental monitoring of the project	▪ Due to the magnitude of the project the proponent will liaise with the environmental, health and safety consultants throughout the construction phase and ensure that the conditions of approval are adhered to.	Proponent, Contractor and EHS consultant	Throughout construction phase	4,800,000
Mandatory Site Assessments	▪ Conduct Occupational Safety and Health Risk Assessment ▪ Conduct Occupational Safety and Health Audit ▪ Conduct Fire Safety Audit	Proponent, Contractor and EHS consultant	Annually	
Total Estimated Costs				***19,470,050***

10.4 Operational Phase Environmental and Social Management Plan

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to the prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts associated with the operational phase of the project are outlined in the table below;

Table 10-2 ESMP for the Operational Phase

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KSH) Per Annum
Increased Solid waste generation	• Use of an integrated solid waste management system (i.e. through a hierarchy of options: Reduce, Reuse, Recycling and Dispose);	Proponent	Continuous	0
	• Provide a central waste receptacle strategically within the office tower and practice temperature modification to keep pests and rodents away; • Provide solid waste handling facilities such as waste bins and skips. Institute recycling programs for materials like paper, cardboard, aluminum cans and glass.	Proponent	One-off	500,000
	• Comply to the National Waste Colour code i.e. Green for Organic Waste, Black for General Waste and Blue for Recyclable Waste	Proponent	One-off	
	• Compost organic waste to reduce the amount of materials that are disposed of.	Proponent	Continuous	
	• Adopt waste reduction strategies such as using bulk dispensers for toiletries in addition to promoting reuse of textile materials.	Proponent	Continuous	
	• Undertake regular employee training programs to raise awareness about waste reduction and recycling practices.	Proponent	Continuous	
	• Contract a NEMA registered solid waste handler to collect, transport and dispose of the waste in legal dumpsites.	Proponent	Continuous	600,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KSH) Per Annum
	• Keep a record of data on the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, reused, recycled, or disposed of (Waste tracking documentation)			
	• Donate redundant but serviceable equipment to charities and institutions. • Work with an e-waste firm to manage electronic waste should the amounts increase to a substantial quantity	Proponent	Continuous	0
	• Undertake regular employee training programs to raise awareness about waste reduction and recycling practices;	Proponent	Continuous	100,000
	• Perform regular waste audits to identify gaps in waste management and implement more efficient and cost-saving practices;			
	• Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2024.			
Increased Wastewater Generation	• Channel all wastewater to Two rivers Wastewater Treatment Plant.	Proponent	One-off	0
	• Regular inspection and maintenance of internal sewer system.	Proponent	Continuous	15,000 per inspection
	• Recycling of Greywater and reuse it for toilet flushing, landscaping and other non-portable purposes.	Proponent	Continuous	120,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KSH) Per Annum
	• Ensure Regular Monitoring of the treated waste water			
	• Adopt more efficient use of water resources in order to reduce of overall amount of waste water generated by the facility.	Proponent	Continuous	0
	• Adopt more efficient use of water resources in order to reduce of overall amount of wastewater generated by the facility.	Proponent	Continuous	0
	• Comply with the provisions of Environmental Management and Coordination Water Quality regulations, 2024.	Proponent	Continuous	0
Water Pollution	• Adhere to the demarcated riparian land and ensure no activities are undertaken at the riparian reserve. • Precautionary measures should be taken to prevent wastewater from being discharged into the environment, particularly during heavy rainfall periods when the risk of run-off is amplified. • Liquid waste from the operational activities should be disposed of in an environmentally sound manner to minimize the risk of discharge into the river. • Ensure operational activities adhere to the Environmental Management and Coordination (Water Quality Regulations), Regulation, 2024 and the (Water Resources) regulations 2025	Proponent	Continuous	0
Increased Pressure on Existing Resources				
Energy Use and Management	• Switch off electrical equipment, appliances and lights when not being used.	Proponent	Continuous	0

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KSH) Per Annum
	• Display information reminding users to switch off lights when not in use.	Proponent	One-off	10-40 % higher than ordinary lighting
	• Install energy saving fluorescent tubes at all lighting points within the building instead of bulbs which consume higher electric energy.	Proponent	One-off	
	• Monitor energy use during the operation of the project and set targets for efficient energy use.	Proponent	Continuous	0
	• Sensitise workers and tenants to use energy efficiently through posters	Proponent	Continuous	50,000
Water use and management	• Promptly detect and repair of water pipe and tank leaks	Proponent	Continuous	100,000
	• Occupants to conserve water e.g. by avoiding unnecessary toilet flushing.	Proponent	Continuous	0
	• Ensure taps are not running when not in use.	Proponent	Continuous	0
	• Install water conserving taps that turn-off automatically when water is not being used.	Proponent	One-off	10-40 % higher than ordinary taps
	• Install a discharge meter at water outlets to determine and monitor total water usage.	Proponent	One-off	20,000
Noise Pollution	• Provision of PPES such as ear plugs for employees working in noisy conditions or with noisy equipment. • Erecting signs and notifying other users of noisy activities.	Proponent	One-off	0
	• Ensure regular maintenance for equipment e.g. HVAC, Generator etc.	Proponent	Annually	250,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KSH) Per Annum
	• Using equipment with low noise ratings or noise reduction technologies such as silencers for the generators. The proponent plans on using generators with acoustic enclosures.	Proponent	Continuous	0
	• Comply to maximum permissible levels for as specified in the EMCA Noise and Vibration regulations, 2009.	Proponent	One-off	50,000
Air pollution from emissions.	• Use of unleaded premium petroleum products that release less harmful substances into the atmosphere.	Proponent	One-Off	0
	• Regular maintenance and servicing of generators. • Conduct Annual Stack emission monitoring and testing for the generators.	Proponent	Annual	500,000
	• Adhere to all the provisions of EMCA (Air Quality) Regulations 2024 regarding management of air emissions such as limiting emissions to permissible levels and standards.	Proponent	Continuous	0
Increased Human and Vehicular Traffic	• Ensure fast screening and access of all vehicles and people entering the premises to prevent traffic snarl-up at the entry point.	Proponent	Continuous	0
	• Ensure that appropriate road /pedestrian signages are positioned strategically within the office tower	Proponent	One Off	250,000
	• Ensure that all drivers making use of the parking adhere to all traffic rules to minimize incidences of accidents.	Proponent	Continuous	0

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KSH) Per Annum
	• Encourage and facilitate public transport use, walking, and cycling by providing infrastructure like secure bike parking.			
Occupational Health and Safety Risks				
Minimization of Occupational health and safety Risks	• Provision of PPES to all personnel working in potentially hazardous areas or with potentially hazardous equipment, and replacing the PPES on wear and tear. • Placing readable signs alerting people of hazards such as slippery floors • Servicing equipment and machines to ensure efficiency. • Engagement of a qualified Health, Safety and Environment officer to implement all necessary measures to ensure health and safety of tenants during operation of the project as stipulated in the Occupational Safety and Health Act, 2007	Proponent	Continuous	1,440,000
Fire Safety Risks	• Provision of fire extinguishers on every floor. • Proper signage on fire alarm as well as a fire evacuation response plan and Fire Assembly point • Installation of smoke alarms, fire sprinkler systems and emergency exit doors. • Training Putting in place and Emergency Response Plan and ensuring all office tower staff and tenants are aware of it. • Providing adequate storage for hazardous and flammable substances and controlling access to them. • Performing emergency drills on a frequent basis, setting benchmarks for response	Proponent	Once-Off	700,000

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KSH) Per Annum
	• Regular Servicing of the Fire safety Equipment • Conduct Fire safety Trainings on an annual basis	Proponent	Annually	200,000
Ensure the general safety and security of the premises and surrounding areas	• Install adequate security measures at the project consisting of CCTV devices, Security alarms systems, electric fenced perimeter wall. • Employ well trained and adequately equipped security guards with ability to man the premises and respond to any existential security threats. • Ensure proper screening of all visitors, their details are well captured and archived, and each visitor is well known to the management before being accommodated by the facility.	Proponent	Continuous	1,800,000
Ensure Environmental, Health and Safety compliance	• Undertake an environmental audit within 12 months after operation commences as required by law. • Conduct Occupational Safety and Health Risk Assessment • Conduct Occupational Safety and Health Audit • Conduct Fire Safety Audit	Environmental/ Occupational Health and Safety Consultants	Annually	400,000
Estimated Annual Costs				***7,095,000***

10.5 Decommissioning Phase ESMP

In addition to the mitigation measures provided in **Tables 9-1** and **9-2**, it is necessary to outline some basic mitigation measures that will be required to be undertaken once all operational activities of the project have ceased. The necessary objectives, mitigation measures, allocation of responsibilities, time frames and costs pertaining to prevention, minimization and monitoring of all potential impacts associated with the decommissioning and closure phase of the project are outlined in the table below

Table 10-3 ESMP for the Decommissioning Phase

Potential Negative Impact	▪ Proposed mitigation measures	Responsibility for Mitigation	Timelines	Cost (KSH)
Decommissioning Phase				
Waste generation	▪ Use of an integrated solid waste management system i.e. through a hierarchy of options: 1. Source reduction 2. Recycling 3. Composting and reuse 4. Combustion 5. Sanitary land filling. ▪ All buildings, machinery, equipment, structures and partitions that will not be used for other purposes must be removed and recycled/reused as far as possible. ▪ All foundations must be removed and recycled, reused or disposed of at a licensed disposal site. ▪ Where recycling/reuse of the machinery, equipment, implements, structures, partitions and other demolition waste is not possible, the materials should be taken to a licensed waste disposal site. ▪ Donate reusable demolition waste to charitable organizations, individuals and institutions. ▪ Manage all waste in line with the requirements of the Environmental Management and Co-ordination (Waste Management) Regulations, 2006.	Demolition Contractor	Throughout the decommissioning phase	300,000
Air pollution	▪ Truck drivers will maintain low speeds to avoid raising dust. ▪ Employees will be provided with dust masks and goggles. ▪ Install dust trappers/nets around the site to prevent dust from spreading in the neighbourhood. ▪ Sprinkle dusty areas with water to keep dust level low.	Demolition Contractor	Throughout the decommissioning phase	100,000

	▪ Trucks involved in demolition and transportation activities of soil and other solid materials from the site should be covered to prevent spreading of dust into the surrounding areas.			
Noise and Vibration	▪ Workers should be provided with appropriate Personal Protective Equipment (PPE). ▪ Ensure compliance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009	Demolition Contractor	Throughout the decommissioning phase	100,000
Occupational Safety and Health Risks	▪ Ensure workers have proper instruction and supervision. ▪ Establish a Health and Safety Plan (HASP) for both the demolition works. ▪ Appoint a trained health and safety team for the duration of the construction work. ▪ Provide workers with adequate and appropriate PPEs. ▪ Provide workers with adequate drinking water and breaks. ▪ Train workers on safety procedures and emergency response.	Demolition Contractor	Throughout the decommissioning phase	300,000
Rehabilitation of project site	▪ Implement an appropriate re-vegetation programme to restore the site to its original status ▪ Consider use of indigenous plant species in re-vegetation	Demolition Contractor	Throughout the decommissioning phase	100,000
Loss of Jobs	▪ Implement a responsible and transparent communication strategy to inform workers well in advance about the decommissioning phase and potential job implications. ▪ Work closely with local employment agencies to assist affected workers in finding alternative employment opportunities, potentially in other local projects or industries. ▪ Consider providing training programs or skills development initiatives to enhance the employability of affected workers in different sectors. ▪ Engage with local community leaders and authorities to explore alternative economic opportunities that can absorb the workforce affected by the decommissioning.	Proponent	Throughout the decommissioning phase	No additional costs.

	▪ Workers should be encouraged to diversify economic activities and skills to protect their income bases.			
Interference with Surface drainage	▪ Proper handling of demolition waste to avoid blockage of existing drainage.	Proponent	Throughout the decommissioning phase	No additional costs
Theft of Reusable Materials	▪ Ensure that the decommissioned site is secured on a continuous basis until the end of the decommissioning stage. ▪ Sort out all reusable waste materials and equipment and sell them off or donate them before disposing of the rest of the demolition waste debris. ▪ Discourage idling and prohibit authorized access to the decommissioned site during the demolition and rehabilitation phase	Proponent	Throughout the decommissioning phase	50,000

11 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Table 11-1 Environmental Monitoring Plan for the proposed project

Component	Action	Standards / Targets	Location	Frequency	Responsibilities	Annual Cost (Kshs)	Supervision
Construction Phase							
Ambient Air Quality	Conduct regular visual inspection of construction site and access roads.	Avoid significant degradation of baseline conditions associated with dust production	Work sites	Continuous during construction activities	Contractor/Proponent	400,000	Construction Management Team
Ambient Noise	Inspect construction site and measure dB levels, at locations where noisy activities are realized close to sensitive receptors and following reception of specific noise-related grievances.	Respect the noise levels set in the EIA Licence conditions	Work sites and neighboring property boundaries.	Continuous during construction activities	Contractor	240,000	Construction Management Team
Traffic Congestion	Conduct visual inspection of traffic snarl ups along Limuru road and neighboring roads.	Avoid traffic snarl-ups along Limuru road and neighbouring roads.	Roads neighbouring the project site	Continuous during construction activities	Contractor	No additional costs	Construction Management Team
Worker Health and Safety	Provide all workers with Health and Safety sensitization	100% of workers sensitized on Safety	Entire construction workforce	Continuous during construction activities.	Contractor	No additional costs	Construction Management Team
	Assess proportion of work accidents duly reported.	0 accidents	Entire construction workforce	Continuous during	Contractor	No additional costs	Construction Management Team

				construction activities.			
Operation Phase							
Wastewater	Effluent monitoring	Effluent standards for discharge into the environment	Discharge point	Biannually	Two Rivers Water and Sanitation Company	60,000	Facility Management
Office Tower Monitoring	▪ Annual Environment Audit ▪ Risk Assessment ▪ Safety and Health Audit ▪ Fire Safety Audit	Comply with all Environmental legal requirements	Entire premises	Annual	Proponent	400,000	Facility Management
Decommissioning Phase							
Worker Health and Safety	Provide all workers with Health and Safety sensitization	100% of workers sensitized on Safety	Entire construction workforce	Continuous during demolition activities.	Contractor	No additional costs	Proponent
	Assess proportion of work accidents duly reported.	Number of accidents	Entire construction workforce	Continuous during demolition activities.	Contractor	No additional costs	Proponent

12 ENVIRONMENT, HEALTH AND SAFETY ACTION PLAN

12.1 Introduction

In today's highly competitive industry, the advancement of technology and processes has brought about an increased concern for environmental, health and safety issues facing the business community. Because of these issues, there is a need for the Main Contractor for the proposed project to commit to move from compliance driven by reactionary concerns to the development of a central strategic management plan. At the heart of the environmental, health and safety strategy lies the ability to measure performance and relate EHS programs to financial success. The contractor must therefore integrate the management of environmental, health and safety issues as early as possible in the business and financial planning cycle.

It is vital for the contractor to understand that competitive advantages can be derived from such programs and that the greatest opportunities exist in providing environmentally sound and safe products to differentiate themselves from competitors. In order to facilitate the integration of environmental, health and safety issues into the business activities, the contractor should implement this Environmental, Health and Safety (EHS) action Plan which has been designed by the Consultant.

This will enable the contractor to deal with any EHS challenges that may emerge during the construction phase and to proactively manage environmental, health and safety issues and obligations. The EHS action Plan encompasses the combined areas of environmental, health, safety and transportation of hazardous materials due to the often-overlapping activities and agency regulations. This plan identifies the important issues that may arise during the implementation of the project, establishes goals designed to actively address these issues, sets forth a framework in which to operate and establishes a mechanism to monitor progress and assure continual improvement.

12.2 Mission

This Health and Safety Action Plan will guide the Main Contractor to:

- Manage all activities in a manner that meets or exceeds compliance with all applicable regulations.
- Protect and enhance the environment and assure the health and safety of workers, associates, customers and our communities.
- Manage and minimize potential liability exposure in environmental, health and safety areas.
- Develop team players who share a positive global view with the skills and willingness to perform all necessary tasks and who assume responsibility for their actions regarding EHS matters.

12.3 Policies

It is important for the Main Contractor to reaffirm their commitment to Directives and policies regarding environmental, health and safety issues. They are expected to:

- Maintain a copy of and adhere to the Directives and policies regarding environmental, health and safety issues at the site.
- Maintain a copy of the EHS Management Plan at the site and ensure the communication of and adherence to the plan.
- Identify a responsible, qualified person (professional or manager) and equip that person with the authority, tools and support necessary to coordinate and implement the environmental, health and safety program.
- Measure performance against the Environmental, Health and Safety Management Plan.
- Provide necessary training programs to associates to equip them with the skills and knowledge required to support the Environmental, Health and Safety Management Plan.
- Update the Environmental, Health and Safety Management Plan on an annual basis.

12.4 Roles and Responsibilities

12.4.1 Main Contractor

The Main Contractor in charge of the project will be responsible for:

- Preparing, updating, and implementing this Environmental Health and Safety Action Plan (EHS), including all associated procedures and local regulations such as the Occupational Safety and Health Act, 2007.
- Identifying and observing all legal health and safety requirements;
- Ensuring that all works are conducted in a safe manner without posing any risks to workers and the neighbouring community;
- Planning to do all work safely;
- Participating in the planning and design stages of trade activities;
- Employing a full-time qualified and experienced EHS Supervisor and staff;
- Identifying health and safety training required for an activity;
- Ensuring workers undertake identified H&S training;
- Communicating and consulting with workers through general/ project meetings and daily toolbox meetings;
- Investigating identified hazards and other safety breaches reported and ensuring that corrective actions are undertaken;
- Assisting with rehabilitation and return to work initiatives;
- Dispute resolution.

12.4.2 Sub-Contractors

The Sub-Contractors and other contractors who are engaged in the proposed project are responsible for:

- Fulfilling the duties of as per the contract required for their own operations;
- Identifying all high-risk construction work associated with their activities and ensuring safe work method statements are developed and implemented;
- Following all safety policies and procedures and site rules;
- Complying with this H&S Management Plan;

- Complying with any directives given to them by the Client;
- Undertake site-specific induction and participate in any client-related briefings;
- Employ a qualified and experienced EHS Supervisor and support staff (e.g. trained staff in First Aid and Fire Fighting);
- Ensuring the workers undergo the site-specific induction;
- Ensuring they have the correct tools and equipment that are in a serviceable condition for the task.

12.4.3 Workers

All workers on the project (including those employed by contractors) will be responsible for:

- Taking reasonable care of their own health and safety;
- Taking reasonable care that their conduct does not adversely affect others;
- Complying with instructions, so far as they are reasonably able;
- Co-operating with reasonable notified policies or procedures.

12.4.4 EHS Supervisor

The Environmental Health and Safety supervisor for the Project will be responsible for:

- Preparing Personal Protective Equipment (PPE) requirements for the project and conducting Regular Monitoring and Supervision of all workers to ensure use of PPE to minimize accidents at workplaces.
- Identifying health and safety training required for an activity.
- Undertake weekly and monthly internal EHS Audits on all project activities and recommend improvements for implementation to the contractor through monthly reports.
- Provide EHS related services between the contractor and all relevant government agencies only in relevant/applicable areas.
- Regular Monitoring and Supervision of the implementation of the NEMA-approved Environmental Management Plan in the ESIA report & NEMA EIA License conditions and provide technical advice to the contractor for the implementation to reduce the level of impacts of the project to the environment and local communities.
- Regular Monitoring and Supervision of the implementation of the Occupational Health and Safety (noise, dust, accidents, working at heights safety, etc) legal requirements as per OSHA, 2007.
- Attend all project site meetings and respond to all emerging issues on Environment, Health and Safety.
- Conduct regular Risk Assessments to identify potential hazards and propose preventive/mitigation measures.

12.5 Emergency and Incident Response

12.5.1 Emergency Preparedness

To ensure adequate preparation in case of an emergency during project works, the contractor is expected to:

- show all workers and subcontractors the emergency exit points and assembly area as part of their induction (this shall be included in the induction checklist);
- display emergency procedures in the site office or other visible locations;
- cause inspection and testing of all firefighting appliances in the workplace to be carried out by a competent person at least once every three months.
- conduct emergency drills in order to evaluate the effectiveness of evacuation procedures and determine the necessary changes or adjustments to procedures to improve performance.

12.5.2 Emergency procedure

The Main Contractor is expected to have procedures in place. In the event of a fire or similar emergency evacuation, dedicated and trained fire marshals should ensure that:

- the workers stop work immediately and vacate the site prior to start up.
- they assist anyone in the workplace who may not be familiar with the evacuation procedures.
- emergency services are called from a mobile phone. Other emergency numbers should be made available and displayed in the numerous locations at site.
- the site office is notified of the occurrence via an incident report.
- workers assemble at the nominated assembly points until all the workers receive further instructions from the site manager or emergency services personnel.

12.5.3 Emergency meeting point

The Main Contractor should ensure that there is a designated meeting point at the entrance and exit of the site. Safe zones will be made accessible by the emergency response team to allow ease of evacuation of injured persons to designated health facilities.

12.5.4 Emergency contact list for the site

The Main Contractor shall display a list of emergency contacts in numerous locations at the site. The Main Contractor shall also maintain emergency contact details for all workers at site.

12.5.5 Incident procedure

The Main Contractor shall put in place incident and accident reporting procedures at the site. In case of an incident, the procedure guide should:

- require workers to immediately notify the site EHS supervisor.
- require workers to avoid interfering with the scene of the incident or accident.
- depending on the nature and severity of the injury, require the EHS supervisor to notify the Directorate of Occupational Safety and Health (DOSH) of the incident.
- require the preparation of an incident/accident investigative report.

The EHS supervisor should record details of the incident and ensure any remedial action is taken.

12.5.6 Notifiable incidents and dangerous occurrences

The Main Contractor should notify the Directorate of Occupational Safety and Health Services of the following incidents and dangerous occurrences:

- the death of a person at site.
- an incident requiring hospitalization.

- a serious injury or illness of a person.
- bursting of a revolving vessel, wheel, grindstone or grinding heel moved by mechanical power.
- explosion of a receiver or container used for storage at a pressure greater than the atmospheric pressure of any gas or gases (including air) or any liquid or solid resulting from the compression of gas.

In the event of such an occurrence, the site manager through the EHS supervisor shall notify the Nairobi area Occupational Safety and Health officer of any accident, dangerous occurrence, or occupational poisoning which has occurred at the workplace. Where an accident in a workplace causes the death of a person therein, the management shall:

i. inform the area Occupational Safety and Health officer within twenty-four hours of the occurrence of the accident; and

ii. send a written notice of the accident in the prescribed form to the area Occupational Safety and Health officer within seven days of the occurrence of the accident.

iii. where an accident in a workplace causes non-fatal injuries to a person therein, the construction site office shall send to the area Occupational Safety and Health officer, a written notice of the accident in the prescribed form within seven days of the occurrence of the accident.

iv. cause all workplace injuries to be entered in the general register specified in section 122 of OSHA 2007.

v. fulfil any other requirement of OSHA 2007, Sec 21.

12.5.7 First aid

- The Main Contractor shall supply adequate first aid equipment, which should be available at the site. The contents of the first aid kit shall be replenished to ensure that the requirements of the OSHA (First Aid) Rules, 1977 are adhered to.
- The Main Contractor shall ensure that workers are trained in first aid in accordance with the OSHA (First-Aid) Rules, 1977.
- The Contractor shall provide space for a first aid room, fully stocked first aid kit and hire a full-time qualified nurse to handle any injuries at the site.

12.6 Accident/Incident Reporting and Investigation

12.6.1 Reporting

The Main Contractor shall ensure that all work-related accidents, injuries, and diseases are reported to the site safety office. An accident/incident register shall be kept on-site and shall be kept up to date.

12.7 Investigation

The main contractor shall ensure that the following accidents/incidents are investigated immediately after the occurrence, and a written report is issued:

- accident-causing death or injury requiring medical aid by a registered doctor.
- failure of the hoisting device.
- structural failure of a permanent or temporary structure.
- contact with overhead or underground power lines.
- contact with underground pipelines causing breakage or release of contents.
- inadvertent exposure to harmful concentrations of hazardous materials.
- failure of a confined space entry procedure.
- failure of a lockout/ /tag out procedure.
- property damage in excess of one million Kenya shillings.
- a near miss that had the potential to cause serious injury or property damage.

Where corrective action is recommended in the investigation report, a follow-up report shall be issued, within 7 days, detailing the steps taken to prevent a recurrence. A copy of all reports shall be submitted to the area DOSHS.

12.8 Induction and Training

12.8.1 Worker induction

The Main Contractor shall work with other contractors to ensure a site-specific induction is provided for all workers and visitors before starting work or accessing the site. This induction shall outline:

- the expectations outlined in this health and safety Management Action Plan, including all policies and procedures.
- the emergency meeting point.
- the site rules.
- the facilities.
- any site-specific hazards.
- high-risk work activities.
- Safe operation and use of any machinery on site.

12.8.2 Statutory training

The Main Contractor shall ensure that the following training is carried out among the workers:

- First aid training in accordance with the OSHA (First Aid) Rules 1977.
- Occupational Health and Safety training in accordance with the OSHA (Safety and Health-Committee)-Rules 2004.
- Fire Safety training in accordance with the OSHA (Fire Risk Reduction) Rules 2007.

The Main Contractor shall establish a Safety and Health committee. The establishment and operations of the committee shall be guided by the OSHA (Safety and Health-Committee)-Rules 2004.

12.8.3 Worker training

The Main Contractor shall:

- ensure workers are trained and competent for the work to be undertaken.
- ensure workers are trained to deal with any risks associated with the work and understand the control measures in place.
- ensure all workers have had relevant training (first aid, firefighting among others)
- ensure on-site training and supervision is provided.
- organize external training for specific tasks where required.
- seek high-risk licenses for all high-risk work and maintain a register of licenses.
- communicate with other contractors to ensure their workers are appropriately trained and competent.

12.9 Consultation and Communication

12.9.1 Consultation

The Main Contractor shall ensure that there is adequate consultation with all workers and contractors on H&S issues for the project. This shall be done:

- at toolbox meetings where anyone can raise issues for discussion.
- informally during the planning of activities or the development of Safe Work Method Statements.
- when changes to workplace arrangements could affect the health and safety of workers.
- during investigations into any incident to establish details of the incident or to formulate corrective action to prevent the incident from re-occurring.

The Main Contractor shall also consult with contractors and suppliers on health and safety issues associated with any products or services provided for the contract:

- during the negotiation phase before agreeing on the work requirements.
- before starting any contractor operations.
- when any changes to workplace arrangements occur that could affect the health and safety of the contractors or affect their work procedures.

12.9.2 Communication

The Main Contractor shall ensure that workers and other contractors are aware of health and safety requirements by providing them with their Safety Management Plan before commencing any project works. Contractors shall be expected to make their workers aware of all safety requirements.

Further, the Main Contractor is expected to communicate relevant safety information to everyone involved in the project through:

- safety induction
- pre-work meetings
- toolbox meetings
- incident reports and outcomes
- distribution of safety alerts or guidance material about industry-specific hazards/incidents

12.9.3 Disciplinary procedures

The Main Contractor shall put in place a disciplinary procedure for errant persons. The procedure shall include:

i. **First violation**: verbal warning.

ii. **Second violation**: written notification.

iii. **Third violation**: Worker dismissal/suspension from the project.

For serious breaches of safety rules, workers shall be immediately dismissed or removed from the site without notice.

12.10Site Safety Procedures

12.10.1 Site rules

1. Incidents/accidents, regardless of their nature, shall be promptly reported to supervisors.
2. Approved hard hats/helmets shall be worn on the job by all personnel.
3. Clothing shall be appropriate to the duties being performed. Long trousers, shirts, reflector jackets and sturdy work shoes are the minimum requirements.
4. Smoking is permitted only in designated areas. "Strike anywhere" matches are prohibited.
5. Running is not permitted anywhere, except in the case of extreme emergency.
6. Safety glasses, goggles or face shields shall be worn when concrete breaking, metal chopping, welding, grinding and other operations require eye protection.
7. Hand tools shall not be used for any purpose other than that intended. All damaged or worn parts shall be promptly or replaced.
8. Power tools shall be operated only by authorized personnel, with guards furnished by the manufacturer "in place".
9. All electrical hand tools shall be grounded or double-insulated.
10. Explosive/powder-actuated tools shall be used only by persons who have been instructed and trained in their safe use.
11. Compressed gas cylinders shall be secured in an upright position.
12. Riding on any hook, hoist or other material-handling equipment which is used strictly for handling material and not specifically designed to carry riders is prohibited.
13. Welding and burning operations shall be carried out only by authorized personnel with appropriate individual protective equipment.
14. Fighting and possession of firearms are strictly forbidden on the job and constitute grounds for dismissal.
15. Possession or use on the job of intoxicating beverages or unauthorized drugs is strictly forbidden and constitutes grounds for dismissal. A copy of the site rules is displayed in the site office.

12.10.2 Site amenities

The Main Contractor shall provide the following amenities on site.

- Toilets/sanitary conveniences in accordance with rule 139 of the OSH (Building Operations and Works of Engineering Construction) Rules 1984. The toilets should be private, adequate in number and with separate male and female facilities. Sanitary bins shall be provided in female facilities.
- Washing facilities/hand-washing facilities as per the requirements of rule 138 of the OSH (Building Operations and Works of Engineering Construction) Rules 1984
- Clean and safe drinking water.
- Accommodation for clothing/Changing rooms.
- Shelters for taking meals.

All workers are to observe good hygiene standards and clean up after themselves.

12.10.3 Site Security

The Main Contractor shall, so far as reasonably practicable, secure the site by:

- Securing the construction sites with danger/warning tapes or erecting a fence around the construction site to prevent unauthorized access.
- maintaining a security office where all persons with the intention of going to the construction site must be vetted and checked for appropriate PPE before being allowed in.
- keeping the entry and exits from the project site secure by installing security cameras during the project construction period.
- locking gates to the site outside normal hours of operation.

12.10.4 Site signage

At a minimum, the Main Contractor shall ensure the following signs are displayed at the entrance to the project site:

- the principal contractor's name, contact details and emergency telephone numbers.
- the location of the site office.
- the appropriate PPE.
- abstract of the health and safety policy.
- abstract of the emergency response plan.
- abstract of the OSHA 2007.

All signage shall be clearly visible from outside and also from within the buildings. Sufficient lighting/illumination must be provided where the signs may be invisible.

12.10.5 Personal protective equipment

The Main Contractor shall provide personal protective equipment (PPE) to workers at the site, unless the PPE has been provided by another contractor.

The Main Contractor shall ensure that the PPE issued is:

- suitable for the nature of the work and any hazard associated with the work.
- a suitable size and fit and reasonably comfortable for the worker who is to use or wear it.
- maintained, repaired or replaced so that it continues to minimize risk to the worker who uses it, including by:

- ensuring it is clean and hygienic.
- ensuring it is in good working order.
- ensuring it is used or worn by the same worker, so far as is reasonably practicable.

When issuing PPE, the Main Contractor should:

- provide workers with information, training and instruction in the proper use, wearing, storage and maintenance of PPE.
- ensure that any other person at the workplace (such as visitors, clients or inspectors) is appropriately provided with PPE to wear as required.

The main contractor shall ensure that workers are made aware of their responsibility to:

- follow all instructions to wear and use PPE.
- take reasonable care of PPE.

12.11Managing Building Health and Safety Hazards

12.11.1 General Lighting

During construction, the Main Contractor shall ensure the following:

- provision of adequate artificial lighting on the site.
- suitable colour/material will be used to prevent glare or unnecessary reflection from walls and roof.
- maintenance of light fittings in clean and in good repair.
- ensuring that the emergency lighting is operable at all times.
- the installed lighting system will be steady.

12.11.2 Air Quality

Construction may generate emission of fugitive dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind. A secondary source of emissions may include exhaust from diesel engines of earth-moving equipment. To reduce and control air emissions from the site, the Main Contractor shall:

- minimizing dust from material handling sources by using covers and/or control equipment (water suppression, bag house, or cyclone).
- minimizing dust from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content.
- implement dust suppression techniques, such as applying water or non-toxic chemicals to minimize dust from vehicle movements.

The Main Contractor shall put in place a monitoring program to ensure dust and fumes do not affect employees and the neighbouring establishments/offices. This shall include periodic measurements of both indoor (on site) and ambient air qualities. The values shall then be compared with the

standards outlined in the OSH (Hazardous substances) rules, 2007 for indoor (on site) exposure and the EMCA (Air quality) regulations, 2014 for ambient air quality.

The Main Contractor shall use the results of the measurements to evaluate the effectiveness of the dust & emissions control measures on site.

12.11.3 Noise

The Main Contractor is expected to put in place measures that shall ensure noise reduction. These include:

- selecting equipment with lower sound power levels.
- installing suitable mufflers on engine exhausts and compressor components.
- installing acoustic enclosures for equipment casing radiating noise.
- improving the acoustic performance of constructed buildings, apply sound insulation.
- installing vibration isolation for mechanical equipment.
- limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas.
- developing a mechanism to record and respond to complaints.

Noise from construction activities may have effects on both workers and persons in the vicinity of the project. As such, the Main Contractor shall put in place a noise monitoring program to establish the levels of noise that the workers (occupational noise measurements) and neighbours (environmental noise measurements) are exposed to. The values shall be compared to the standards set out in the OSHA (Noise Prevention & Control) Rules 2005 and the EMCA (Noise & Excessive vibration pollution control) Regulations 2009.

The results of the measurements shall be used to evaluate the effectiveness of the noise control measures on site.

12.11.4 Ventilation System

The Main Contractor shall ensure that work spaces are adequately ventilated. Where natural ventilation is not available, an operable ventilation system capable of supplying clean and good quality air shall be provided by the Main Contractor. The Main Contractor shall ensure that the installed system is:

- capable of withstanding high temperatures.
- in good working condition.
- capable of evacuating any noxious gases, ground gases, dust, heat or fumes present in the buildings.

12.11.5 Transport and materials safety

The Main Contractor shall ensure high standards of both material and transport safety during construction. At a minimum, the Main Contractor is expected to:

- ensure that all containers of hazardous substances are adequately labeled.

- obtain all safety data sheets (SDS) for all hazardous substances in use.
- have in place a robust traffic surveillance system including audible alarm warning systems and signaling for traffic monitoring.

12.11.6 Fire and Emergency Response

The Main Contractor shall put in place the following measures to ensure minimal risk of fire-related hazards:

- monitoring atmospheric conditions such as wind direction.
- ensuring that appropriate fire extinguishers are installed in place and periodically serviced.
- provision of adequate directions towards fire exits.
- ensuring that the catwalks and ladders are clear.
- having a trained firefighting team on standby who can take responsibility in an emergency.
- conducting fire drills to ensure that the emergency response and evacuation plan is well understood.

12.12 Managing construction hazards

12.12.1 Falls from heights.

The Main Contractor shall manage the risks associated with falls from heights by:

- ensuring that where practicable, any work involving the risk of a fall is undertaken on the ground or on a solid construction (such as an elevated work platform).
- where this is not practicable, providing a fall prevention device such as secure fencing, edge protection, working platforms and/or covers.
- where this is not practicable, providing a work positioning system such as plant or a structure (other than a temporary work platform) that enables a person to be positioned and safely supported.
- where this is not practicable, providing a fall arrest system such as a safety harness system. Workers will be trained in emergency procedures for fall arrest systems.
- use of control zones and safety monitoring systems to warn workers of their proximity to fall hazard zones, as well as securing, marking, and labeling covers for openings in floors, roofs, or walking surfaces.

When undertaking work involving the risk of a fall from height, the Main Contractor shall ensure workers must:

- follow all instructions.
- work with a colleague when using a ladder.
- only use approved work platforms.

12.12.2 Struck by Objects

Construction and demolition activities may pose significant hazards related to the potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities.

Where such risks are present, the Main Contractor shall ensure that the following control measures are put in place:

- Conducting sawing, cutting, grinding, sanding, chipping, or chiseling with proper guards and anchoring as applicable.
- Maintaining clear traffic ways to avoid driving heavy equipment over loose scrap.
- Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as handrails and toe boards to prevent materials from being dislodged.
- Wearing appropriate PPE, such as safety glasses with side shields, face shields, hard hats, and safety shoes

12.12.3 Excavation work/trenching

The Main Contractor shall put in place the following measures before any excavation works are conducted:

- Ensure all necessary measures have been put in place to avoid cave-ins and failure of earth walls.
- Find out about any underground services that may be affected by their works, before starting work.
- Implement control measures to avoid direct or inadvertent contact with underground services.
- Potholes be dug (by hand) to expose existing services before any mechanical excavation near the services.
- Provide safe means of access and egress from excavations.
- Each employee at the edge of an excavation 6 feet (1.8 m) or more in depth shall be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barrier; the contractor shall ensure that proper assessments are done based on the condition of the area such as non-existent vegetation.
- Avoid the operation of combustion equipment for prolonged periods inside excavations areas where other workers are required to enter unless the area is actively ventilated.

12.12.4 Work near overhead or underground essential services

The Main Contractor shall ensure, where reasonably practical, that no one comes within an unsafe distance of an overhead or underground power line.

If maintaining a safe distance is not reasonably practical, the Main Contractor shall:

- assess the risk associated with the proposed work.
- implement control measures consistent with the risk assessment.
- contact and consult with the local essential service providers.

12.12.5 Electrical

The Main Contractor shall ensure electrical safety through the following:

- Power supplied to the site shall only come from:
  - an electricity distributor main.
  - an existing switchboard permanently installed at the premises.

  - a compliant low-voltage generator.
  - a compliant inverter.
- Switchboards and distribution boards used on site shall:

- be of robust construction and materials capable of withstanding damage from the weather and other environmental and site influences
- be securely attached to a post, pole, wall or other structure unless it is of a stable freestanding design able to withstand external forces likely to be present.
- incorporate suitable support and protection for flexible cords and cables and prevent mechanical strain to the cable connections inside the board.
- protect all live parts at all times.
- be individually distinguished by numbers, letters or a combination of both (where multiple boards are present).
- Flexible cords used on construction sites must be rated heavy-duty.
- Ensure hazard-reducing devices like cut-outs, earth leakage and isolating devices are in place.
- Flexible cords must be either protected by a suitable enclosure or barrier (flexible or rigid conduit) or located where they are not subjected to mechanical damage, damage by liquids or high temperature (elevated on stands or hung from non-conductive support brackets).
- The Main Contractor shall maintain an in-service inspection and test regime for all portable electrical leads, tools and earth leakage devices.
- The main shall ensure that after the equipment has been inspected and tested, it shall be fitted with a durable, non-reusable, non-metallic tag. The tag shall include the name of the person or company who performed the test and the test and re-test date.
- Records of all inspections, tests, repairs and faults related to all electrical equipment shall be recorded in a testing and tagging register.
- Workers shall report any damaged electrical equipment to the site manager. It will be removed from service and either repaired or replaced and subsequently inspected and tested as required.

12.12.6 Plant, machinery, and equipment

To ensure all plant, equipment and machinery used comply with the requirements of the OSHA 2007 *Sec 55*, the Main Contractor shall:

- only use plant for the purpose for which it was designed.
- use all health and safety features and warning devices on plant.
- follow all information, training and instruction provided.
- ensure guarding is permanently fixed and is not permitted to be removed.
- ensure that no person other than the operator may ride on the plant unless the person is provided with a level of protection that is equivalent to that provided to the operator.

Further, the Main Contractor shall ensure that:

- all plant is regularly maintained, inspected, and tested by a relevant competent person.

- the plant has a warning device that will warn persons who may be at risk from the movement of the plant.
- all plant that lifts or suspends loads is specifically designed to lift or suspend that load.
- there is segregation of the location of vehicle traffic, machine operation, and walking areas, and controlling vehicle traffic through the use of one-way traffic routes, the establishment of speed limits, and on-site trained flag-people wearing high-visibility vests or outer clothing covering to direct traffic.
- there is visibility of personnel through their use of high visibility vests when working in or walking through heavy equipment operating areas, and training of workers to verify eye contact with equipment operators before approaching the operating vehicle.
- moving equipment is outfitted with audible backup alarms.

12.12.7 Scaffolds

The Main Contractor shall ensure:

- that the scaffold is erected by a competent person
- that before we use the scaffold, the competent person has advised that it is safe.
- that scaffolding is inspected by a competent person:
    - before use of the scaffold is resumed after an incident occurs that may reasonably be expected to affect the stability of the scaffold
    - before use of the scaffold is resumed after repairs
    - at least every 30 days.
- that, if an inspection indicates that any scaffold or its supporting structure creates a risk to health or safety:
    - any necessary repairs, alterations and additions will be made or carried out.
    - the scaffold and its supporting structure will be inspected again by a competent person before the use of scaffold is resumed.
- that scaffolds are provided with safe means of access, such as stairs, ladders, or ramps.
- that every part of a working platform, gangway or stairway of a scaffold from which a person is liable to fall a distance of 2 m is provided with guard-rails and toe-boards.
- that platforms on scaffolds are of adequate dimension, especially in width, for the tasks performed from the scaffold.

The Main Contractor shall ensure that workers:

- do not use incomplete scaffolding.
- report any scaffolding issues to the safety manager/site manager.

- comply with the directions of any tags attached to the scaffold.

12.12.8 Ladder safety

The Main Contractor shall manage hazards associated with ladders by:

- using ladders according to the manufacturer's instructions.
- only allowing one person at a time on a ladder.
- performing all work from a ladder while facing the ladder.
- ensuring the ladder stands on a firm and level footing except in the case of a suspended ladder.
- ensuring the ladder is equally and properly supported on each stile or side.
- fulfill all other requirements as per OSHA 2007, *Sec 75.*

12.12.9 Manual handling

The Main Contractor shall manage hazards associated with manual handling by:

- ensuring all users follow good manual handling practices.
- assessing risk assessments.
- providing mechanical lifting aids where applicable.
- Not permitting any worker to engage in the manual handling or transportation of a load which by reason of its weight is likely to cause the employee to suffer bodily injury (OSHA, 2007 sec 76 (4).

12.12.10 Slips, trips, and falls

The Main Contractor shall manage hazards associated with slips, trips and falls by:

- Implementing good housekeeping practices, such as sorting and placing loose construction materials or demolition debris in established areas away from footpaths.
- Locating electrical cords and ropes in common areas and marked corridors.
- ensuring that walking areas are slip-resistant.
- using slips, trips and falls checklist as required.
- checking for hazards that could cause someone to slip, trip or fall by doing a visual check.
- ensuring workers keep the site tidy as part of the written site rules.
- use of slip-retardant footwear.

12.12.11 Hand-operated and power tool use

The Main Contractor shall manage hazards associated with hand-operated and power tool use by ensuring that:

- all tools conform to provisions of OSHA 2007 *sec 76 (1).*
- tools are used only for the work for which they have been designed.
- tools are operated only by workers who have been authorized and given appropriate training.
- power tools are provided with protective guards and shields.
- safe operating procedures are established and used for all power tools.

- every power-driven tool is provided with adequate means, immediately accessible and readily identifiable to the operator, of stopping it quickly and preventing it from being started again inadvertently.
- there is regular checking of all tools to ensure they are in a safe working order.
- all electrical tools are recorded in a tag and testing register.
- electrical tools are tested and tagged every 3 months.\
- any issues identified with power tools are communicated to workers through a toolbox meeting.

Before using power tools, the Main Contractor must ensure that:

- electrical connections are secure.
- electricity supply is through an RCD.
- safety guards are in position.
- the machine is switched off before activating the electricity supply.
- appropriate PPE is used as required by the manufacturer's guidelines or as guided by the safety manager.

The Main Contractor shall require workers to report any issues with power tools to the safety officer/manager. Unsafe tools shall be tagged and removed from service.

12.12.12 Traffic Safety

The Main Contractor shall ensure prevention and control of traffic-related injuries and fatalities through:

- Designing and implementing a concise traffic management plan.
- Emphasizing safety aspects among drivers.
- Improving driving skills and requiring licensing of drivers.
- Adopting limits for trip duration and arranging driver rosters to avoid over exertion.
- Avoiding dangerous routes and times of day to reduce the risk of accidents.
- Use of speed control devices (governors) on trucks, and remote monitoring of driver actions.
- Minimizing pedestrian interaction with construction vehicles.
- Collaboration with local communities and responsible authorities to improve signage, visibility, and overall safety of roads.
- Employing safe traffic control measures, including road signs and flag persons to warn of dangerous conditions.

12.12.13 Waste Management

The Contractor should implement measures to minimize waste and therefore develop a waste management plan which should include but not be limited to the following: -

- Contractor to develop and implement a Waste Management Plan (outlining the waste generation activities, waste types and volumes expected, storage, collection, transportation, recovery and disposal programme) before start of the project

- Collecting litter and managing it accordingly/as per waste management and recovery plan. The construction site should be kept clean, neat and always tidy.
- No burying or dumping of any waste materials, metallic waste, litter or refuse should be permitted.
- Incorporating recyclable materials to reduce the volume and cost of new materials.
- Provision of bottle and can trash disposal receptacles at parking lots designated as hoarding sites for the project to avoid littering.
- Managing sediment and sludge removed from storm drainage systems maintenance activities as hazardous or non-hazardous waste based on an assessment of its characteristics.
- Sub-contract a NEMA licensed waste handling firm to collect solid wastes (that cannot be reused or recycled) on a regular basis and dispose of in a NEMA approved disposal site or recycling facility.

12.12.14 Disease Prevention

A. Occupational diseases

To mitigate the risk of occupational diseases, the Main Contractor shall cause pre-employment and periodic medical examinations to be carried out among workers by a Designated Health Practitioner as outlined in the OSH (Medical Examination) Rules, 2005.

B. Communicable diseases such as HIV/AIDS

The Main Contractor shall launch a HIV/AIDS control program that will provide awareness and education to workers. In partnership with government and non-governmental organizations, voluntary counselling, testing and distribution of condoms among workers shall be achieved.

C. Vector-Borne diseases

The Main Contractor shall put in place a pest and vermin control program to ensure insects and rodents are eliminated within the construction site.

13 CONCLUSION AND RECOMMENDATION

The ESIA study has established that the proposed office tower development is a worthwhile investment; it will contribute significantly to the provision of modern and affordable office spaces to both local and international organisations and by extension spur economic development. This will be achieved through the previously discussed positive impacts namely; growth of the economy, boosting of the informal sector during the construction phase, provision of market for the supply of building materials, employment generation, increase in government revenue, and optimal use of land.

The proponent shall be committed to putting in place several measures to mitigate the potential negative environmental, safety, health and social impacts associated with the life cycle of the proposed project. It is recommended that in addition to this commitment, the proponent shall focus on implementing the measures outlined in the EMP as well as adhering to all relevant national and international environmental, health and safety standards, policies and regulations that govern the establishment and operation of such projects. It is expected that the potential positive impacts arising from the proposed development shall be maximized as much as possible. These measures will go a long way in ensuring the best possible environmental compliance and performance standards.

It is our recommendation that the project be allowed to proceed provided the mitigation measures outlined in the report are adhered to, the Environmental Management Plan and Environmental Monitoring Plan is implemented and the developer adheres to the conditions of approval of the project that will be given by NEMA.

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15 ANNEXES

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