ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED SERVICED RESIDENTIAL APARTMENTS ON PLOT L.R NO. NAIROBI/BLOCK 4/119 (1870/VI/97), LOCATED ALONG RHAPTA ROAD IN WESTLANDS AREA WITHIN NAIROBI CITY COUNTY.

PROPONENT:

Vision Investment Company Limited,

P.O. BOX 58788 -00200

City Square, Nairobi.

Prepared by:

Ecohealth Company Limited

Firm of Experts

Registration Number 2368

P.O Box 3834-00506

Nairobi

*Proposed Project Location (*GPS Coordinates) -1.264919, 36.794582

CERTIFICATION PAGE

This ESIA study report has been prepared in accordance with the Environmental Management and Coordination Act (EMCA) 1999 (amended 2015) and the Environmental (Impact Assessment and Audit) Regulations 2003.

Certification by the EIA Firm of Experts

This ESIA study report has been prepared by Ecohealth Company Limited (Firm of Experts, NEMA Reg. No.2368) in accordance with EMCA 1999 (Amended 2015) and the Environmental Impact Assessment and Audit Regulations 2003. The EIA Firm of Experts hereby certify that the detailed in this ESIA study report for the proposed residential serviced apartments project on plot L.R No. Nairobi/Block 4/119 (1870/VI/97) along Rhapta road in Westlands are factual.

Name	Registration Status By NEMA	Certificate Registration Number
Ecohealth Company Limited Name of Lead Expert James Thiaine Signature......[illegible]...... Date:...18/12/2024...	Firm of experts	2368

Certification by the Project Proponent—Vision Investment Company Limited.

We hereby certify that the content of this Environmental and Social Impact Assessment Study report for the proposed residential serviced apartments project on plot L.R No. Nairobi/Block 4/119 (1870/VI/97) along Rhapta road in Westlands are true and confirm that we shall implement the Environmental Management Plan and other ESIA recommendations. We further affirm our commitment to best environmental practices and active participation in environmental management.

Proponent Details-Vision Investment Company Limited	Particulars
Name of the Proponent representative	Edward G. Munyao
Designation	Associate
Signature	[illegible]
Date	18/12/2024

Table of Contents

VISION IN[illegible]MENT CO. LTD.
P. O. Box [illegible]3991 - 00200,
NAIROBI [illegible]

Table of Contents

List of Tables

List of Figures

Acknowledgement

The EIA Firm of Experts would like to take this opportunity to thank all persons who provided support and information in the preparation of this EIA study report. We are particularly grateful to Kennedy Otieno, Mumo Kianga, Edward Gikunda and Bancy Kathambi for the support provided.

The EIA team is also grateful to the project neighbours and other key stakeholders for their valued feedback, inputs, comments and opinions during the public participation exercise.

List of Acronyms

Abbreviation	Meaning
CCTV	Closed Circuit Television
CSR	Corporate Social Responsibility
dB	Decibels
DOSHS	Directorate of Occupational Safety and Health Services
EDL	Effluent Discharge Licence
EHS	Environment Health and Safety
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMCA	Environmental Management and Coordination Act
EMP	Environmental Management Plan
GPS	Global Positioning System
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency
KEBS	Kenya Bureau of Standards
KES	Kenya Shillings
KPLC	Kenya Power and Lighting Company
KURA	Kenya Urban Roads Authority
Lat	Latitude
LN	Legal Notice
Lng	Longitude
MSDS	Material Safety Data Sheet
MSMES	Micro, Small and Medium Enterprises
NCA	National Construction Authority
NEMA	National Environment Management Authority
NET	National Environmental Tribunal
NEAP	National Environmental Action Plan
NEP	National Environmental Policy
NWSC	Nairobi Water and Sewerage Company
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Act
PIC	Public Involvement and Consultation
PPE	Personal Protective Equipment
SOP	Standard Operating Procedure
ToR	Terms of Reference
WIBA	Work Injury Benefits Act
WRA	Water Resource Authority

Executive Summary

a) The Proposed Project Description

The proponent, Vision Investments Company Limited has proposed to develop two blocks of serviced residential apartments on its parcel of land, Plot No. L.R No. 1870/VI/97 located along Rhapta Road in Westlands, Nairobi City County.

The proposed serviced residential apartments shall comprise of 2 blocks of 18 floors containing the following -

- Basement 1 & 2 will have 97 car parking bays.
- Ground Floor will have 37 parking bays, garbage room, guard house, driveway, reception and waiting area.
- Typical 1st to 18th floor plan
- Block A & B will comprise 102 mini one (1) bedroom units, 34 of one (1) bedroom units, 68 of two (2) bedroom type 1, 17 of two (2) bedroom type 2, 12 of one (1) bedroom loft, 4 of two (2) bedroom duplex and 5 of three (3) bedroom duplex, penthouses.
- The total number of units for the 2 blocks will be 242 units.

The proposed site is on GPS Coordinates -1.264873, 36.794370 and the plot size is 0.2023 hectares (0.5 acres). Administratively, the site is in Kileleshwa Location, Kileleshwa Ward, Westlands Sub-County in Nairobi City County.

b) Key project impacts and mitigation measures

The ESIA study has established that the proposed project has potential positive impacts and negative environmental and social impacts. The anticipated positive impacts from the proposed project included but are not limited to provision of housing to Kenyans, income to the developer, revenue to the government, optimal use of the plot, creation of employment and improvement of area security.

The project potential negative impacts and their mitigation measures are summarized in table 1 below.

Table 1. Summary of project potential negative environmental and socio-economic impacts

Aspects	Impacts	Mitigation Measures
Removal of vegetation	Soil erosion, adverse aesthetic value, loss of ecosystem services	o Retain some trees in the compound o Incorporate green spaces in the building o Carry out landscaping o Support tree planting in the community and country to offset lost trees
Excavation works	Soil disturbance, air pollution, soil erosion, adverse public safety and health impacts including noise, dust and vibrations; occupational safety and health impacts, destruction of neighbouring properties; generation of solid wastes	o Ensure construction site of well fenced off and access by unauthorized strictly restricted o Ensure all construction activities are undertaken during the day and not at night o Ensure sufficient setback space is left between the property and boundary o Employ sufficient structural and civil engineering techniques to ensure that walls of excavated areas are stabilized o Implement sufficient safety and health measures for workers including provision of PPE and site safety awareness o Ensure proper disposal of excavated materials in line with EMCA waste regulations. o Backfill and stabilize the excavated areas after project completion. o Implement dust control measures including sprinkling water and shade netting (dust proofing)
Delivery of construction materials, carting away of waste, additional people in the area	Increase on traffic; potential for road traffic accidents	o Ensure parking of vehicles is done within the property and not outside or on roadsides o Optimize on off-peak hours to deliver materials and cart away waste o Strictly implement recommendations of the traffic impact assessment study report o Use of traffic marshals when trucks are entering or leaving site
Use of water and energy	Increased demand for water & electricity	o Borehole will be drilled on site o Rainwater harvesting will be done o Sufficient water storage will be done on site. o Undertake water conservation at all project phases

		○ Building will optimize on natural lighting ○ Consider harnessing of solar energy to supplement mains electricity
Construction works and presence of people in the area	Insecurity	○ Ensure that all strangers in the area are documented with the area *Nyumba Kumi* ○ Adhere to the area Rhapta community security rules and guidelines. ○ Sensitize the workers on community and neighborhood safety aspects. ○ Provide physical security at the site
Community health and workers' health aspects.	HIV and drug abuse	○ Sensitize construction workers and the community on HIV prevention. ○ Develop and implement alcohol and drug abuse policy ○ Encourage voluntary testing and counseling.

c) Conclusion and Recommendations

The proposed project is a contributor to meeting housing needs in Nairobi. There are potentially significant adverse project impacts that must be mitigated to ensure a harmonious and sustainable development. The proponent must strictly implement the mitigation measures spelt out in the EMP and adhere to the conditions of licence from relevant authorities. Views and inputs from neighbours and members of the public must be taken into consideration while undertaking the proposed development.

1.0 Introduction

From their infancy through their growth, cyclical processes, renewal, and regeneration, cities have been propelled forward by globalization, urbanization, migration, and technological advancements. For business, employment, travel and leisure, an increasing number of people are relocating and settling in urban areas. In Kenyan cities, the demand for residential space expansion has continued to be extremely high with the government maintaining/servicing the land and letting private developers develop it making both the public and private sectors contribute in considerable measure. Housing supply has not kept up with the aforementioned phenomenon.

But in accordance with physical planning policies, which aim to increase the supply of standard housing units, water supply, and sanitation, channelize urbanization, and ensure proper urban development and management, the government of Kenya has introduced a policy—affordable housing aimed at providing over 150,000 house units annually. To tap into the opportunity provide housing in the City of Nairobi, which is fuelled by increasing demand, Vision Investment Company Limited is proposing to develop serviced residential apartments on land plot L.R No. 1870/VI/97 (Nairobi/Block 4/119) situated along Rhapta Road in Westlands area within Westlands Sub-County in Nairobi City County.

Under section 58 of the Environmental Management and coordination Act (EMCA), 1999 as well as Environmental (Impact Assessment and Audit) Regulations of 2003 require that proposed urban developments must undergo EIA and a report be submitted to NEMA for determination. The proposed serviced residential apartments development falls in the category of high risk projects as it is involves establishment of new housing exceeding one hundred housing units.

In preparing this EIA study report, the EIA experts have followed the guidelines specified in the Environmental (Impact Assessment and Audit) Regulations, 2003 and Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019.

2.0 Terms of Reference

The Terms of Reference for conducting Environmental Impact Assessment Study of the proposed serviced apartments on plot L.R No. 1870/VI/97 along Rhapta Road in Westlands, Sub-County was prepared by the Firm of experts in July 2024 and submitted to NEMA for review and approval.

The terms of reference was approved by NEMA on the 9th August 2024 with the following conditions:

1. To undertake a detailed climate change risks and vulnerability Assessment to inform the appropriate adaptation and mitigation measures to climate proof the project in line with provisions of Climate Change Act, 2016.
2. To undertake detailed baseline environmental and social conditions on water demand and supply analysis, waste management, noise and excessive vibrations, air quality, traffic impacts, geotechnical and existing land use character within the proposed project site.

The objectives of the ESIA study were to:-

1. Identify the anticipated environmental impacts of the proposed project and the scale of the impacts.
2. Identify and analyze alternatives to the proposed project;
3. Propose mitigation measures to be taken during and after the implementation of the project; and to
4. Develop an environmental 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 terms of reference for this ESIA study for the proposed serviced apartments were prepared based on the findings of screening and scoping study, field visits, and information collected from both primary and secondary sources including the information provided by the Project Proponent—Vision Investments Company Limited. The TOR (Reference Number: NEMA/TOR/5/2/774) were submitted to National Environment Management Authority and approved on 9th August 2024. A copy of the terms of reference approval letter is attached in this EIA report.

3.0 EIA Study Methodology

The following methodology was used in conducting the ESIA study of the proposed serviced apartments in plot L.R No. 1870/VI/97 along Rhapta Road in Westlands Sub-County.

1. Screening to determine need for EIA
2. Scoping, development of Terms of Reference and submission of the ToR to NEMA
3. Baseline environment and socio-economic study by way of site visit, physical observations, interviews with relevant persons, review of thematic study reports and other relevant literature.
4. Reviewing and analysis of the proposed project documents including land ownership documents, approved architectural plan, project concept, change of user among others.
5. Meetings and discussions with the proposed project proponent and other key stakeholders.
6. Public participation through interviews, questionnaires and meetings.
7. Impact analysis entailing impact identification, prediction and evaluation
8. Climate risk and vulnerability assessment
9. Data collation, analysis and consultative preparation of the EIA study report

4.0 Project Objective and project cost

4.1 Project objective

The proposed project is to construct serviced apartments for residential use.

4.2 Project cost

The proposed project will cost an estimated Kenya Shillings Nine Hundred and Five Million, Two Hundred and Eighty Eight Thousand, Eight Hundred and Twenty Three **(KES 905, 288, 823/-).** A summarized project Bill of Quantities is appended to this study report.

5.0 Description of the proposed project

5.1 Project Location and Land Ownership

The proposed project will be located on plot L.R. No 1870/VI/97 (NAIROBI/BLOCK 4/119) along Rhapta Road, in Kileleshwa Location, Westlands Sub-County of Nairobi City County. The proposed site is on GPS Coordinates: Lat: -1.2647339, Lng: 36.794317. The proposed site is approximately 0.2023 Ha or 0.5 acres in size, with a relatively flat gradient and owned by Vision Investment Company Limited. A copy of the land title deed is appended.

The map below shows the proposed project site location.

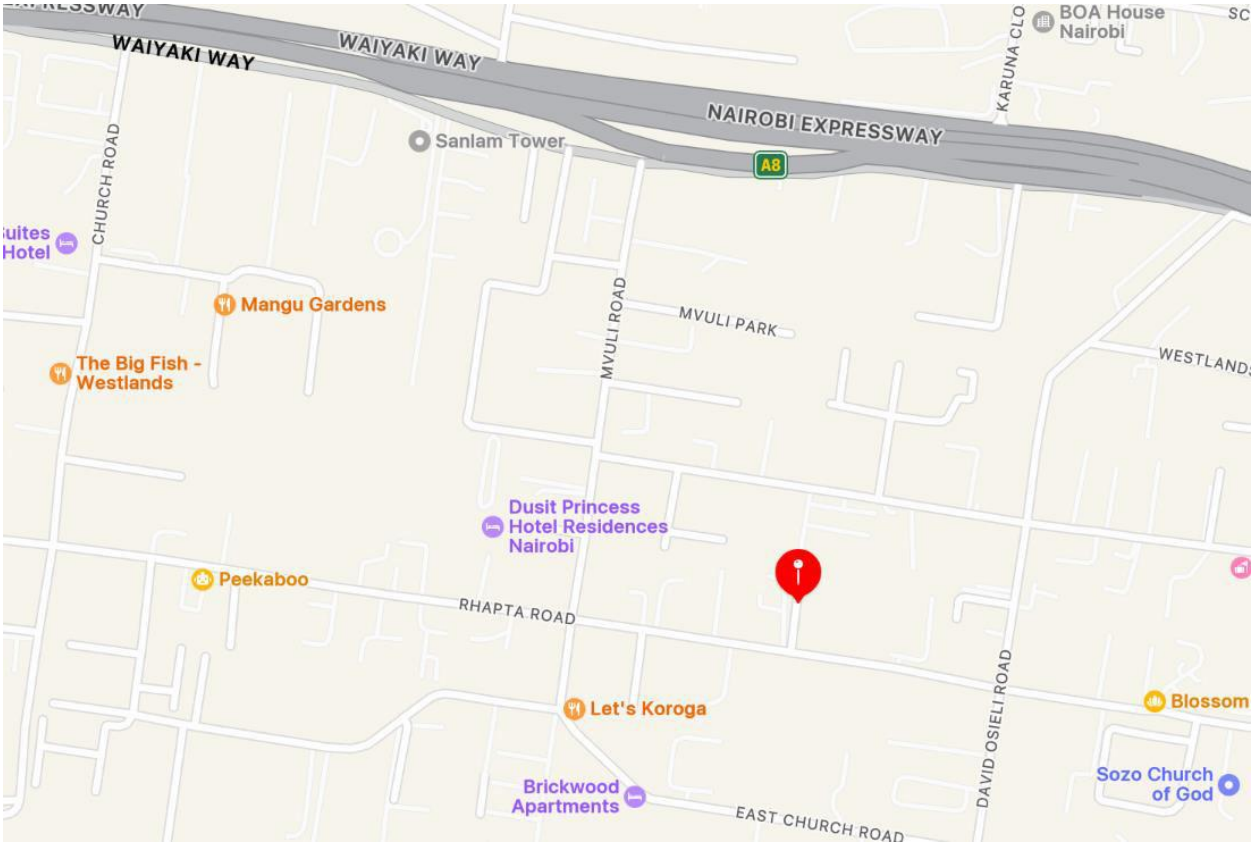

Figure 1. Project site location along Rhapta Road

Next to the site is an upcoming 18 storeyed building by Central Link Property Company Ltd. On the opposite side of Rhapta Road there are also many high rise buildings including Asmin Court apartments right opposite the plot. The plot is also in the neighbourhood of Malkia Heights, a 13-storey block of residential apartments at the junction of East Church Road and David Osieli Road as well as Escada, an 18-storey block of residential apartments at the junction of Lantana Road and Rhapta Road. There is also the Marina Apartments comprising of two blocks of 14 floors each at the Junction of David Osieli Road and Sports Road Off Westlands Avenues in Westlands.

The photos below show some of the existing and upcoming developments in the area.

Figure 2. Other highrise developments in the area

Figure 3. A highrise 18-floor building under construction along Rhapta Road about 50 metres from the project site

5.2 Current site status

The site presently has an old house that is not in use and a servant quarter that used to serve the house. There is no one resident on site. The compound has a perimeter live fence and two temporary metallic gates. Inside the compound there are a few trees and grass. The existing facilities will be removed to pave way for the construction.

The photograph below shows the current status of the project site.

Figure 4: Current status of the project site

5.2 The proposed project design

The design for the proposed project is as follows –

There are two blocks of apartment, each with 18 storeys comprising the following -

- Basement 1 & 2 will have 97 car parking bays.
- Ground Floor will have 37 parking bays, garbage room, guard house, driveway, reception and waiting area.
- Typical 1st to 18th floor plan
- Block A & B will comprise 102 mini one (1) bedroom units, 34 of one (1) bedroom units, 68 of two (2) bedroom type 1, 17 of two (2) bedroom type 2, 12 of one (1) bedroom loft, 4 of two (2) bedroom duplex and 5 of three (3) bedroom duplex, penthouses on upper level.
- The total number of units for the 2 blocks will be 242 units.

Other auxiliary facilities will include a roof garden and lounge area, garage holding area, cafeteria and swimming pool.

Water supply will be from the Nairobi Water company supplemented by a borehole to be drilled on site and rainwater, which will be harvested. Energy supply will come from mains electricity and solar energy harvesting.

Architectural plans of the proposed project have been approved by the County Government of Nairobi and approvals are appended to this report.

6.0 Baseline Environmental Setting of the Project Area

6.1 Overview

Nairobi City County is estimated to have a total area of 696.1 Km2 and is located between longitudes 36º 45' East and Latitudes 1º 18' south. It lies at an altitude of 1,798 meters above sea level. Nairobi City County is administratively partitioned into 17 sub counties including Westlands, Langata, Kibra, Starehe, Kasarani, Mathare, Ruaraka, Kamukunji, Roysambu, Embakasi South, Embakasi East, Embakasi Central, Embakasi West, Embakasi North, Dagoretti North and Dagoretti South. The City has total of 85 wards and the proposed development is situated within Kileleshwa Ward in Westlands Sub-County.

6.2 Physical Environment

6.2.1. Climate

The climate of Nairobi is sub-tropical highland (Cfb) according to the Köppen climate classification. The temperature ranges from a low of 10 degrees to a high of 29 degrees Celsius with an average of 18 to 20ºC. The sunniest and warmest part of the year is from December to March, when temperatures average in the mid-twenties Celsius during the day. The mean maximum temperature for this period is 24 °C.

Due to the ITCZ (Inter- Tropical Convergence Zone) that forms throughout the area around the equinoxes, where the prevalent winds of the Northeast and Southeast converge, Nairobi has a bimodal rainfall pattern with the long rains season falling between March to June while the short rains season falls between October and December. The mean annual rainfall is 900 mm ranging from 500mm to 1500mm (Nairobi County CIDP, 2023-2027).

6.2.2 Soil and geology

The Nairobi region, including Westlands is covered by a thick succession of alkaline volcanic rocks and associated tuffs, derived from the Rift Valley region (Saggerson, 1991). According to a geotechnical investigation carried out at the proposed site, the plot has top vegetative soils up to a depth of 3 metres, followed by a layer of fine grained red clay soil up to a depth of 6 metres, followed by coarse grained brownish clay soil with fragments of murram up to a depth of 7 metres. Underlying this layer is highly weathered brownish tuff rock with mechanical joints up to a depth of 10 metres which then grades to moderately weathered dark brown tuff rock having natural sub-horizontal joints with clay infills present up to the maximum inspection depth of 15.00m

6.2.3 Topography

The site is generally on a relatively flat terrain although the area around Rhapta Road gently slopes West-East towards the Kirichwa river about 5 kilometres away from the project site.

6.2.4 Hydrological features

The main rivers in Nairobi County are Mathare River, Ngong River and Kirichwa River that merge to form the Nairobi River. These rivers are highly polluted as open sewers and industrial waste is directed towards them. Nairobi dam, which is along the Ngong River, and Jamhuri dam are the main water reservoirs in the County. The site is approximately 5 kilometres away from the Kirichwa tributary of the Nairobi River.

6.3 Biological Environment Setting

6.3.1 Biodiversity

Nairobi County has both indigenous and exotic forests which have a wide variety of trees, plants, herbs and other floral species. The proposed site area has a few indigenous and exotic trees as well as grass. The tree species at the site include jacaranda, and avocado. Figure 5 below shows vegetation type at the project site. Other than insects and birds perching on trees, there are no other animals on site.

Figure 5: Vegetation at the proposed project site

6.4 Socio-economic setting

6.4.1 Population

According to the Population and Housing Census of 2019, Nairobi City County had a population of 4, 397,073 people. Westlands Sub-County had a population of 308, 854 with a density of 3, 167 people per square kilometer.

6.4.2 Land Use and Local Economy

Westlands Sub-County has mixed land use comprising of commercial and residential properties. The area has office blocks, hotels, residential apartments and entertainment joints among others. Rhapta Road mainly comprises of a mixture of single and multiple dwellings. In the recent years, the face of the area has significantly changed from single dwellings to highrise apartments owing to demand for housing and scarcity of space for development. Some of the recent highrise buildings in the area include GTC, Malkia Heights, Ibis Styles, Marina Bay, Delta Towers, Park Inn by Radisson, One Africa Place, Movenpick Residences, Pinnacle Court Apartments, Austen Place and Kates Apartments among others.

6.4.3 Infrastructure and Access

The area is well served by a good road network. The site touches Rhapta Road and is easily accessible from Waiyaki Way through David Osieli, Mvuli, Lantana and Church Roads.

Rhapta Road is 9 m wide road; the project design will create a setback of 6m to allow for easier access and movement through the way.

6.4.4 Telecommunications

Mobile communication network coverage in Nairobi County is estimated at 98% while fixed line coverage is poor with only 214 connections in the entire County. This may be attributed to the fact that fixed lines are rapidly becoming obsolete in addition to the high maintenance cost of the fixed line network. There are 19 post offices and 14 sub-post offices which are fairly distributed within the County. The area has good network coverage from all available service providers.

6.4.5 Education Institutions

There are variety of educational institutions distributed in Nairobi City County including private and public primary, secondary and colleges. The closest college is Nairobi Technical Training Institute and Nairobi University Chiromo campus. The public schools include Westlands Primary School and the secondary school includes Nairobi School and other public and private schools spread across the Westlands. The closest education institution is Parklands Baptist Academy and St John Eudes Waridi School.

6.4.5 Energy Access

Westlands sources its electrical energy from the national grid system through Kenya Power. The proposed site will not have difficulty in accessing electricity, since the power transformer is right at the entrance to the site. The proponent also intends to do harness solar energy for use in the project.

6.4.6 Housing and water

Westlands gets water supply from Nairobi Water Company. The area is well served with the water pipeline network whereby a diameter 100mm GI pipe passes along the fence of the plot proposed for development. The property was already connected with water supply from Nairobi Water Company and the meter was still in place. However, since the connection was for a single dwelling unit, the connection will need to be upgraded to commercial type so that the housing units can get adequate water.

The proposed development will be connected to the waterline of Nairobi Water and Sanitation Company. A borehole will also be drilled on site to complement water supply from the Nairobi Water Company. Rainwater harvesting will also be done.

6.4.7 Waste Management

Westlands area is served by a conventional sewer line run and managed by Nairobi Water and Sewerage Company upon completion the development will be connected to it. There is a major sewer trunkline running along Rhapta Road.

7.0 Policy Institutional and Environmental Legal Framework

7.1 Policy Framework

The Kenya Governments environmental policy aims at integrating environmental aspects into national development plans. The broad objectives of the national policy include:

- Optimal use of Natural land and water resources in improving the quality of human environment
- Sustainable use of natural resources to meet the needs of the present generations, while preserving their ability to meet the needs of future generations
- Integration of environmental conservation and economic activities into the process of sustainable development
- Meeting national goals and international obligations by conserving biodiversity, arresting desertification, mitigation effects of disasters, protecting the ozone layer and maintaining an ecological balance on the earth.

7.1.1 The important National Environment Policies

These include -

- The Constitution of Kenya; Article 42 – Supporting public involvement in ensuring the right to a clean and healthy environment.
- National Environment Policy 2013
- Sessional Paper No. 1 of 2017 on National Land Use Policy
- Sessional Paper No. 3 of 2016 on National Climate Change Framework Policy; Mainstreaming low carbon growth options
- National Policy on Occupational Safety and Health, 2012; requires the formulation and implementation workplace code of practice in order to ensure health, safety and security, (b)-Creating awareness on safety and health.
- National Environmental Sanitation and Hygiene Policy (2007) (GoK, 2007); Sanitation and the environment protection of the environment from pollution and its negative effect on human health.

7.1.2 National Environment Policy 2013

The National Environmental Policy acknowledges that the survival and socio-economic wellbeing of Kenyans is ultimately intertwined with the environment. Moreover, Kenya's environmental resources contribute directly and indirectly to the local and national economy through revenue generation and wealth creation in such productive sectors as agriculture, fisheries, livestock, water, energy, forestry, trade, tourism and industry. The goal of the National Environmental Policy is better quality of life for present and future generations through sustainable management and use of the environment and natural resources. According to the policy, the right to development will be exercised taking into consideration sustainability, resource efficiency and economic, social and environmental needs. The policy states that environmental resources will be utilised in a manner that does not compromise the quality and value of the resource or decrease the carrying capacity of supporting ecosystems. The policy also acknowledges that the unsustainable use of land in urban and rural areas remains a major challenge to all Kenyans due to the serious impact on the environment. Towards this end, the government shall promote sustainable urban and peri-urban land uses.

The national environment policy also appreciates that the environment aspects of such infrastructural development are distinct and unique such as effects on flora and fauna, social and psychological disruption, vegetation clearance, excavation works and spillages during construction. As such, the government will Government will ensure Strategic Environmental Assessment (SEA), Environmental Impact Assessment, Social Impact Assessment and public participation in the planning and approval of infrastructural projects; develop and implement environmentally-friendly national infrastructural development strategy and action plan.

Relevance to project:

The proposed development is a building whose EIA study is in line with the requirements of the National Environmental Policy, 2013.

7.1.3 Constitution of Kenya 2010

Article 42-Environment; Indicates that every person has the right to a clean and healthy environment, which includes the right to –

a) Have the environment protected for the benefits of present, future generations through legislative and other measures, particularly those contemplated in Article 69, and

b) Have obligations relating to the environment fulfilled under Article 70.

Article 43-Economic and social Rights

Indicate that every person has the right to accessible and adequate housing and to reasonable standards of sanitation.

Relevance to project:

The developer has an obligation to protect the environment and safeguard the right of the community where the proposed project will take place to a clean and healthy environment. The development will enhance the attainment of citizen rights to accessible and adequate housing.

7.1.3 National Housing Policy 2016

The Sessional Paper No. 3 of 2016 on National Housing Policy is expected to ensure progressive realization of the right to accessible and adequate housing and reasonable standards of sanitation for every person as per Article 43 of the Constitution. Among other aims, the policy is aimed at facilitating increased investment by the private sector in the production of housing for low and middle-income urban dwellers.

Under environmental sustainability, the policy states that EIA shall be applied on sources of building materials such as quarries, forested and woodland areas, sources of sand like rivers, soils for making bricks and even how such bricks are cured for building purposes and encourage the 3Rs; and that EIA shall be participatory, interrogative and well planned in order to unearth any weaknesses, if any.

Relevance to project:

EIA study has been done on the proposed project and mitigation measures recommended for negative impacts. This is to ensure environmental sustainability of the project.

7.1.4 National Sustainable Waste Management Policy 2021

The goal of this framework policy is to protect public health and the environment, as well as drive job and wealth creation, by creating an enabling environment for sustainable, integrated waste management and the minimization of waste generation, to contribute to a circular economy. This policy is guided by the principles of the right to a clean and healthy environment for all Kenyans, the right to sustainable development, partnership, devolution and cooperative government, equity and social inclusion, integrity and transparency, precautionary and polluter pays principles, as well as zero waste principle and extended producer responsibility. Under this policy, all legal entities performing transport, storage, treatment and processing of waste shall obtain an environmental license from NEMA for performing such activity.

According to this policy, the shift from mixed disposal at household level to "sorting of waste at source" of recyclable materials, organic and other waste recoverable streams will be key in the realisation of sustainable waste management. Under the policy, the national government will develop regulations that require all institutions, businesses, commercial trading, industrial, residential and property developers to provide source segregation receptacles at their premises. On the other hand, county governments will enforce waste fractions segregation at source based on the national gazetted minimum waste fractions for all waste generators including household level.

Relevance to project:

Wastes generated from the project must be managed in accordance with this policy and applicable waste management laws.

7.2 Institutional Framework

7.2.1 The National Environment Management Authority (NEMA)

This is the government authority charged with the general supervision and coordination of all environmental matters in the Kenya. NEMA is the principal instrument of the government in the implementation of all policies relating to the environment. The authority is a creature of the Environmental Management and Coordination Act (EMCA) that came into effect on January 14, year 2000. Among others, the functions of NEMA are to:

a) Coordinate various environmental management activities undertaken by lead agencies;

b) Promote the integration of environmental considerations into development actions with a view to ensuring proper management and rational utilization of environmental resources on a sustainable yield basis for the improvement of quality of life;

c) Advise the government on legislative and other measures for the management of the environment or the implementation of various international conventions, treaties and agreements in the field of environment;

d)Identify development actions for which environmental audit and monitoring must be conducted under the Act;

e) Cooperate with relevant lead agencies on environmental education and enhancement of public awareness on environmental protection.

Under EMCA, NEMA may delegate any of its powers on the performance of any of its functions to County Environment Committees; NEMA officers; and its employees or agents.

Relevance to project;

NEMA is the EIA licensing authority for proposed development project.

7.2.2 The National Construction Authority (NCA)

This Authority was created by the National Construction Authority Act of 2011. The functions of the NCA as specified in section 5 (2) of the Act are to:

- promote and stimulate development, improvement and expansion of the construction industry;
- undertake or commission research into any matter relating to construction industry;
- prescribe the qualifications or other attributes required for registration as a contractor under this Act;
- assist in the exportation of construction services connected to the construction industry;
- provide consultancy and advisory services with respect to the construction industry;
- promote and ensure quality assurance in the construction industry;
- encourage the standardization and improvement of construction techniques and materials;
- initiate and maintain a construction information system;

Relevance to project:

The project and the contractor are supposed to be licenced with NCA before construction begins.

7.2.3 Nairobi City County

This is the county government under whose jurisdiction the proposed project lies. The county is responsible for development control within the City of Nairobi including approvals of change of user and development permission.

Relevance to project:

Proponent has applied and obtained approval of plans and change of user from DOSHS.

7.2.4 The Directorate of Occupational Safety and Health Services (DOSHS)

This is department under the Ministry of Labour and Social Services tasked with enforcement of the occupational safety and health policies, laws and standards in Kenya.

Relevance to project;

Developer and contractor will need to abide by DOSHS requirements including registration of the construction site with DOSHS.

7.3 Legislative and Regulatory Framework

7.3.1 The Environmental Management and Coordination (Amendment) Act (EMCA) 2015

The Environmental Management and Coordination (Amendment) Act 2015 is an act of parliament to amend the EMCA 1999 (The Principal Act). EMCA provides for the establishment of an appropriate legal and institutional framework for the management of the environment. EMCA provides every person in Kenya with the right to a clean and healthy environment. The Act defines the role of Environmental Impact Assessment (EIA) as a tool to maintain environmental integrity. Under the Act, projects likely to impact negatively on the environment must be subjected to EIA. Section 58 (1) of the Act states that **"***Notwithstanding any approval, permit or license granted under this Act or any other law in force in Kenya, any person, being a proponent of the project, shall, before 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 project report to the Authority [NEMA) in the prescribed form, giving the prescribed information and which shall be accompanied by the prescribed fee***"**.

Part (2) of section 58 states **"***the proponent of any project specified in the second schedule shall undertake a full environmental impact assessment study report to the Authority prior to being issued with any licence by the Authority; provided that the authority may direct that the proponent forego the submission of the environmental impact assessment report in some cases.* The second schedule of the Act details the types of projects for which an EIA must be carried out.

Compliance:

The proponent has undertaken an EIA study as per the requirements of Section 58 (1) of EMCA chapter 387 awaiting approval prior to the commencement of the project.

b) The proponent will implement the proposed EMP and adhere to the conditions set in the license of the proposed project.

c) The proponent will adhere to subsequent EMCA legislations such as the noise and waste regulations throughout the cycle of the project.

d) The proponent shall undertake EA for the project and submit the reports to NEMA as per the EIA/EA guidelines.

Relevance to project: *Application for EIA Licence before project commencement is a requirement for the proposed project.*

7.3.2 The Sustainable Waste Management Act, 2022

This is an Act of Parliament to establish the legal and institutional framework for the sustainable management of waste; ensure the realisation of the constitutional provision on the right to a clean and healthy environment and for connected purposes.

Under this Act, waste" means any substance, material or object that is intended or required to be discarded or disposed of by its holder, whether or not it can be reused, recycled, recovered and include municipal waste, domestic waste, waste from agriculture, construction waste, commercial waste, waste from horticulture, aquaculture and forestry, medical waste, chemical waste, hazardous waste, toxic waste, industrial waste, pesticides, e-waste and toxic substances but does not include radioactive waste.

Under this Act, County governments shall be responsible for implementing the devolved function of waste management and establishing the financial and operational conditions for the effective performance of this function.

Under Section 12 of this Act, all public and private sector entities shall segregate non-hazardous waste into organic and non-organic fractions. The segregated waste shall be placed in properly labeled and colour coded receptacles, bins, containers and bags, and all waste service providers shall collect, handle and transport segregated waste as provided for under this Act.

Relevance to project: *Wastes generated from the project must be managed in accordance with the provisions of The Sustainable Waste Management Act, 2022, including provision of receptacles and safe disposal.*

7.3.3 The Environmental Management and Coordination (Waste Management) Regulations, 2006.

Under Regulation 4 (1), no person shall dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated public receptacle. Under

Regulation 6, a waste generator shall segregate waste by separating hazardous waste from non-hazardous waste and shall dispose of such wastes in such facility as shall be provided by the relevant local authority. Under Regulation 18, every generator of hazardous waste shall ensure that every container or package for storing such waste is labeled in easily legible characters, written in both English and Kiswahili. The label shall contain the following information:

a) The identity of hazardous waste;

b) The name and address of the generator of waste;

c) The net contents;

d) The normal storage stability and methods of storage;

e) The name and percentage of weight of active ingredients or half-life of radioactive material;

f) Warning of or caution statements which may include any of the following as appropriate-

(i) The words **"**WARNING**"** or **"**CAUTION**"**;

(ii) The word **"**POISON**"** (marked indelibly in red on a contrasting background); and
(iii) The words **"**DANGER! KEEP AWAY FROM UNAUTHORIZED PERSONS**"**;
and (iv) a pictogram of skull and crossbones

g) A statement of first aid measures, including the antidote when waste is inhaled, ingested or dermal contact and a direction that a physician must be contacted immediately

Relevance to project: *Project wastes must be managed in accordance with the requirements of Waste Management Regulations, 2006.*

7.3.4 The Environmental Management and Coordination (Water Quality) Regulations,

2006

These regulations apply to drinking water, water used for industrial purposes, water used for agricultural purposes, water used for recreational purposes, water used for fisheries and wildlife and water used for any other purpose. Under Regulation 4 (1), every person shall refrain from any act which directly or indirectly causes, or may cause immediate or subsequent water pollution, and shall be immaterial whether or not the water resource was polluted before the enactment of these Regulations. Regulation 4 (2) states that no person shall throw or cause to flow into or near a resource any liquid, solid or gaseous substance or deposit any such substance in or near it, as to cause pollution. In Regulation (5), all sources of domestic water shall comply with the standards set out in the First schedule to these Regulations. According to Regulation (6), no person shall –

a) Discharge any effluent from sewage treatment works industry or any other point sources without a valid effluent discharge license issued in accordance with the provisions of this Act; and

b) Abstract ground water or carry out any activity near any lakes, rivers, streams, springs and wells that is likely to have any adverse impact on the quantity and quality of the water, without an EIA license issued in accordance with the provisions of this Act.

Relevance to project: *Project effluent (sewerage and wash water) must be managed in accordance with the requirements of Water Quality Regulations, 2006.*

7.3.5 The Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations 2006

According to Regulation 3.(1), except as otherwise provided in these Regulations, no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise that annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment.

According to regulation 3 (2), in determining whether noise is loud, unreasonable, unnecessary or unusual, the following factors may be considered:

(a) Time of the day;

(b) Proximity to residential area;

(c) Whether the noise is recurrent, intermittent or constant;

(d) The level and intensity of the noise;

(e) Whether the noise has been enhanced in level or range by any type of electronic or mechanical means; and,

Under Regulation 4. (1) Except as otherwise provided in these Regulations, no person shall-

(a) Make or cause to be made excessive vibrations that annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment;

(b) Cause to be made excessive vibrations that exceed 0.5 centimeters per second beyond any source, property boundary or 30 metres from any moving source**.**

Relevance to project: *Project must control noise and excessive vibrations at all project phases and comply with the limits specified in the regulations.*

7.3.6 The Physical and Land Use Planning Act, 2019

Part IV of this Act provides for control of development. This Act provides for the preparation and implementation of physical development plans for connected purposes. It establishes the responsibility for the physical planning at various levels of Government in order to remove uncertainty regarding the responsibility for regional planning. A key provision of the Act is the requirement for Environmental Impact Assessment (EIA). Section 57 (1) of the Act requires that no person shall carry out development within a county without a development permission granted by the respective County Executive Committee member. Under section 57 (5), a county executive committee member may revoke development permission if the applicant has contravened any provision of this Act or conditions imposed on the development permission for any justifiable cause.

Relevance to project: *Development permission for the proposed project was obtained from the County Government Planning Department.*

7.3.7 The Occupational Safety and Health Act, 2007

This is an Act of parliament to provide for the safety, health and welfare of workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. According to Section 3 (1), this legislation shall apply to all workplaces where any person is employed, whether permanently or temporarily. Under Section 3 (2), the purpose of this Act is to: -

a) Secure the safety, health and welfare of persons at work; and

b) Protect persons other than persons at work against risks to safety and health arising out of, or in connection with, the activities of persons at work.

Under Section 6 (1), every occupier shall ensure the safety, health and welfare at work of all persons working in his workplace. Under section 6 (3), every occupier shall carry out appropriate risk assessments in relation to the safety and health of persons employed, and on the basis of these results, adopt preventive and protective measures to ensure that under all conditions of their intended use, all chemicals, machinery, equipment, tools, and process under the control of the occupier are safe and without risk to health and comply with the requirements of the safety and health provisions in this Act. Under 6 (4), every occupier shall send a copy of a report of risk assessment carried out under this section to the area occupational safety and health officer. According to Section 6 (6), it is the duty of every occupier to register his workplace unless such workplace is exempted from registration under this Act. Under section 7 (1) except in such cases as may be prescribed, it is the duty of every occupier to: -

a) prepare and, as often as may be appropriate, revise a written statement of his general policy with respect to the safety and health at work of his employees and the organization and arrangements for the time being in force for carrying out that policy; and

b) to bring the statement and any revision of it to the notice of all his employees.

Under section 9 (1), every occupier shall establish a safety and health committee at the workplace in accordance with regulations prescribed by the minister if –

(a) There are twenty or more persons employed at the workplace; or

(b) The Director (of Occupational Safety and Health) directs the establishment of such committee at any other workplace.

Section 11 (1) states that the occupier of a workplace shall cause a thorough safety and health audit of his workplace to be carried out at least once in every period of 12 months by a safety and health advisor, who shall issue a report of such an audit containing the prescribed particulars to the occupier on payment of a prescribed fee and shall send a copy of the report to the Director of Occupational Safety and Health Services. According to Section 13 (1) (c), every employee shall at all times wear or use any protective equipment or clothing provided by the employer for the purpose of preventing risks to his safety and health. Under Section 16 (1), no person shall engage in any improper activity or behavior at the workplace which might create or constitute a hazard to that person or any other person. In accordance with Section 21, an employer or self-employed person shall notify the 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 employer or self-employed person shall –

a) Inform the area occupational safety and health officer within 24 hours of the occurrence of the accident; and

b) Send a written notice of the accident in the prescribed form to the area occupational safety and health officer within 7 days of occurrence of the accident.

Under Section 22 (3), an occupier shall send a written notice of any disease specified in the second schedule of the Act occurring in the workplace to the Director. Under Section 47 (1), every workplace shall be kept in a clean state, and free from effluvia arising from any drain, sanitary convenience or nuisance. In accordance with section 52 (1), sufficient and suitable sanitary conveniences for the persons employed in the workplace shall be provided, maintained and kept clean, and effective provision shall be made for lighting the conveniences; and where persons of both sexes are or are intended to be employed (except in the case of workplaces where the only persons employed are members of the same family dwelling there), such conveniences shall afford proper separate accommodation for persons of each sex. Under section 78 (1), all stocks of highly inflammable substances shall be kept either in a fire resisting store or in a safe place outside any occupied building, provided that no such store shall be so situated as to endanger the means of escape from the workplace or from any other part thereof in the event of fire occurring in the store. Under Section 81 (1), in every workplace or workroom, there shall be-

a) provided and maintained, and conspicuously displayed and free from any obstruction so as to be readily accessible, means for extinguishing fire, which shall be adequate and suitable having regard to the circumstances of each case; and

b) Present, persons trained in the correct use of such means of extinguishing fire during all working hours.

Under 81 (2), every workplace shall be provided with adequate means of escape, in case of fire, for persons employed therein, having regard to the circumstances of each case. Under 82 (1), every occupier of a workplace shall design evacuation procedures to be used during any emergency and have the procedures tested at regular intervals. Under Section 84 (3), every employer shall ensure the availability at the workplace of material safety data sheets for all chemicals and other hazardous substances in use at the premises of the employer, containing detailed essential information regarding the identity, supplier's classification of hazards, safety precautions and emergency procedures.

Relevance to project: *Contractor must register the proposed development with the Directorate of Occupational Safety and Health Services as a construction site. Proponent must also ensure safety and health is maintained at all project phases.*

7.3.8 Air Quality Regulations—Legal Notice 34 of 2014.

These regulations are aimed at controlling, preventing and abating air pollution to ensure clean and healthy ambient air.

Compliance: The proponent will ensure that operations at the site do not generate dust, particulates and other emissions beyond allowable limits especially during construction by deploying efficient dust screens, PPE and other dust suppression measures.

7.3.9 National Construction Authority Act No. 4 of 2011.

An Act of Parliament to provide for the registration of contractors operating or willing to undertake construction operations in Kenya as by law through the National Construction Authority (NCA), which is constituted under Act No. 41 of 2011 Laws of Kenya. Section 15 of this Act demands registration of contractors with NCA while section 17 and 18 outlines the procedure of registration of contractors.

Compliance: The proponent will comply with the Act by ensuring that the site and project contractors are registered and certified by NCA. The proponent will also ensure that the proposed project is registered with NCA.

7.3.10 Physical Planning (Building and Development Control) Regulations

Under the provisions of the Physical Planning (Building and Development control) Regulations, the Director of Physical Planning shall refuse to recommend any new building or proposed development, or alteration or addition to any existing building if:

a) The proposal is not in conformity with approved development plan.
b) Such plans disclose a contravention of the physical Planning (Building and Development) rules.
c) The plans are not correctly drawn or omit to show information required.
d) On such being required, separate application accompanied by sets of plans has not been lodged in respect of building on separate plots or subplots etc.
e) The proposed development is in line with the overall project site zoning guide and will acquire an approval from Nairobi City County Government.
f) The proponent shall adhere to the recommendations given in the building order by the county physical planner and
g) The proponent shall ensure that the building plans are available on site for inspection by county officials during construction and at any other time.

8.0 Project Activities and Processes

8.1 Construction Phase

The proposed project has various construction inputs which will be involved in the project. Key inputs and activities are summarized below.

8.1.1 The proposed project construction materials (inputs)

The construction materials for the proposed project include ordinary cement, aggregate, concrete mix and reinforced steel. Other materials will include ordinary construction materials such as as timber, paints, varnish, anti-termite chemicals, tiles, electrical and sanitary fittings.

8.1.2 Key construction activities

The proposed project will have the under listed activities during construction phase

- Site hoarding and necessary installation of signboards
- Demolition of existing old houses, site clearance and preparation
- Excavation and appropriate disposal of excavated soil
- Laying of foundation slab and walling
- Construction of the proposed building, masonry and concrete work, structural steel, work, electrical works, mechanical work, plastering and painting and fitting necessary fixtures and fittings
- Storm water and drainage works
- Connection to utilities - electricity, water and sewer line
- Cleaning and removal of construction waste and landscaping
- County Government inspection/occupation certificate and completion of works certificate issued.

8.1. 2 Wastes to be generated

The proposed project will generate various types of wastes at different project phases including -

a) Excavated soil
b) Demolition debris and other materials
c) Packaging material waste
d) Left over construction waste

8.2 Operation and maintenance phase

8.2.1 Inputs

The inputs at the operation and maintenance phase include water, electricity and repair and maintenance materials.

8.2.2 Wastes

The wastes to be generated at operation and maintenance phase include –

a) Assorted organic and inorganic household wastes
b) Wastewater (effluent) from water closets, laundry, kitchens and bathrooms

8.3 Operation and maintenance phase

8.3.1 Inputs

The inputs at the decommissioning phase include tools, equipment, machinery and fuel.

8.3.2 Wastes

The wastes to be generated at decommissioning phase include –

a) Demolition debris
b) Wastewater (effluent) from broken water and utility conduits

8.4 Waste Management

The proposed project solid waste management will incorporate the segregation of waste at source, transportation of the waste to the central holding area and final disposal through a contracted NEMA licensed waste handlers and recyclers. During construction phase;

- Express condition shall be put in the contract that before the contractor is issued with a completion certificate; the site should be clear of all debris and restore it to a state acceptable by the supervising architect/ project engineer and environmental consultant.
- Excess soil from excavation and foundation works shall be reused for earthworks and landscaping within the site. Excess waste shall be disposed by licensed waste haulers.

When in operation, the proponent shall provide solid waste collection bins strategically across the buildings. The proponent will contract a licensed waste handler who will collect all solid wastes at agreed intervals and dispose them at licensed disposal sites. Recyclable waste shall be held at temporary collection points awaiting collection by a licensed recycler who shall be contracted to collect at regular intervals. Waste tracking forms shall be used.

9.0 Analysis of Project Alternatives

This chapter presents an analysis of project alternative with special consideration to environmental and social issues. The alternatives considered are alternative sites, alternative designs, alternative plot uses and the no project alternative.

7.3 Alternative projects (uses of the plot)

The proponent has the option of putting the plot to other uses including commercial business complex, school, petrol station, town houses and other possible uses. The proposed use in is conformity with the land use zonation in the area (residential houses) and a change of user has been obtained from the County government of Nairobi for the 18 storey serviced residential apartments. Under the Nairobi City County Development Control Policy (2021), Westlands falls under zone 3 where commercial, residential apartments are permitted. Other uses would be in conflict with the existing and permitted land use.

7.4 Alternative project sites

The proponent has the option of undertaking the development at sites other than the proposed development. This could include East of Nairobi, Parklands, Thika Road and Nairobi suburbs among others. The site has been chosen owing to its proximity to the City centre, market demand for houses such as those in the proposed design and the development trend in the area, which is in favour of high rise serviced residential apartments.

9.3 Alternative designs

There are an array of designs that the developer has at his disposal. Instead of the proposed one, two and three bed-roomed units in the proposed design, the developer could consider town houses, maisonettes, bed sitters and any other possible designs. The proposed design is informed by market demand in the area, optimization of the plot and customer preferences.

9.4 The No project alternative

This option implies forfeiting the proposed development and thus avoiding both the positive and negative impacts that would have arisen during its implementation. From a socio-economic perspective the “no action” alternative may not be the best alternative as the numerous benefits to be gained from the development would not be realized. If the status quo is maintained, the prime plot would not be put into optimal use. This option would deny Kenyans an opportunity to access decent housing that the proposed project intends to provide.

10.0 Potentially Affected Environment

Various components of the environment will be potentially affected by the proposed project as described below.

a) Air

Some activities will affect the quality of air in the area at the construction, operation and maintenance as well as the decommissioning phase of the project cycle. These activities include excavation and construction work that will generate dust and noise, trucks delivering material or carting away waste material will generate exhaust emissions and decommissioning activities that can generate dust. Each of the phases during the project life cycle will have potential impact on air and therefore changing its quality.

b) Water

Water will be affected by the proposed development through consumptive utilization. More water will definitely be required during the construction, operation and maintenance, therefore guidelines are in place to regulate and control the amount of water to be used. Multiple sources of water are will be provided.

c) Land-soil

There will be soil disturbance at the construction phase of the project. This will loosen soil and expose it to agents of erosion. Land will also be recipient of waste from the project activities and can be polluted if not well managed. Planting of trees and protection of existing ones will improve quality of land.

d) Biodiversity

There will be positive and negative impacts on biodiversity, which will however not be significant. Some of the few trees on site will have to be removed to pave way for construction. This will affect the ecology of organisms that depend on the trees for food and habitat. On the other land, there will be landscaping and integrating of green spaces in the building.

e) Human environment and health related aspects

The social environment will be affected both positively and negatively. From a negative perspective, there will be generation of dust and noise during the construction phase and at decommissioning phase if this is to happen. Humans will also generate waste. Positively, the project will provide employment, income and housing.

11.0 Stakeholders Consultation and Participation

During environmental and social impact assessment study of the proposed project, EIA experts conducted public participation by way of meetings, interviews and questionnaires. This was preceded by stakeholder mapping engaged by stakeholder and public participation plan developed when preparing the Terms of Reference for the ESIA study.

Interviews were held with key informants including the project manager and architects. Invites for public participation meeting were sent to area residents individually, to the area chief and the Rhapta Road Residents Association. The association however wrote declining the invite to the public participation meeting.

A public participation meeting was held on site chaired by the area chief, whose minutes are appended. Questionnaires were also used to obtain views and inputs from the neighbours and members of the public.

11.1 Summary of views and inputs from neighbours and members of the public

Table 2 below has summarized the views and inputs from neighbours and members of the public.

Table 2. Summary of views and inputs from neighbours and members of the public

Anticipated positive impacts	Anticipated Negative impacts	Comments and recommendations
○ Contribution to Kenya government revenue ○ Provision of housing hence addressing demand for housing ○ Creation of employment ○ Improved living standards of the workers through income ○ Market for construction materials ○ Maximum utilization of land	• Interference with area aesthetic condition • Possibility of air pollution / dust emissions • Heavy traffic during construction • Health and safety of workers • Noise, dust and vibrations • Removal of vegetation • Generation of waste • Pressure on the existing utilities	• Make the building child and disability friendly • Retain trees on the property • Ensure all trucks and other vehicles are parked inside the property • Comply with NEMA regulations and conditions • Work with the area residents • Ensure no night activity

○ Appreciation of property value ○ Increase local business activity ○	• Increased demand for water and energy • Piling of soil debris • Degradation of road infrastructure during construction period • Security concerns • Local labor may not utilized by the contractor • Nuisance to the neighbours by new people at the proposed project site • Increased traffic during operation of the proposed project • Visual intrusion of the neighbouring properties	

Completed questionnaires and minutes of the public participation meeting are appended to this report.

The photographs below shows public participation meeting in progress at the project site on the 16th of November, 2024.

Figure 6. Public participation meeting during the EIA Study

11.2 Challenges encountered during public participation phase of the EIA Study

11.2.1 Weather on the date of public participation meeting

It was very rainy throughout the day on the date of the public participation. This affected attendance to the meeting as some people did not want to get out of the comfort of their homes to the meeting.

11.2.2 Non responsive residents

Some residents including the Rhapta Road Residents association members declined to attend the public meeting. Some other residents did not return the questionnaire administered.

12.0 Potential Environmental and Social-economic Impacts

This chapter has discussed the potential project impacts at the construction, operation and decommissioning phases.

12.1. Impacts during construction phase

12.1.1. Positive Impacts during planning and construction phase

a) Creation of employment and income

During this period there will be employment opportunities for casual labourers, the contractor and consultants involved in the project. They will generate income through their services.

b) Business opportunities

There will be business opportunity for providers of goods and services to the construction site. There will be opportunities for suppliers of construction inputs and transport service providers. Local traders will benefit from business opportunities presented by the construction.

c) Generation of Revenue

The facility will be required to apply for all the statutory licences. These are important sources of revenue to the national and county government.

12.1.2. Negative impacts during construction phase

a. Solid waste generation

Various types of solid waste will be generated from construction activity. These include demolition rubble, left over construction material and excavated soil. If not well disposed of, these could cause water, air or land pollution. This impact will however not be significant.

b) Destruction of vegetation

Inevitably, some trees at the site will have to be removed to pave way for construction of proposed apartments. Removal of vegetation has adverse environmental impacts including soil erosion, destruction of habitats for fauna, release of carbon and adverse aesthetic impacts. This impact will not be significant as the number of trees on site are few.

c. Occupational Safety and Health impacts

There will be occupational safety and health hazards at the construction phase. These include manual materials handling, working at heights (fall risk) and depth, noise, dust, working with tools, and exposure to elements of weather. These are significant impacts as accidents can result in severe injury or even death.

d. Increased demand for water and energy

Water and energy resources will be used at the construction phase as inputs. These will cumulatively increase demand for these resources. This impact is potentially significant as water is a scarce resource in Nairobi.

e. Air pollution

There will be air pollution from vehicles and machinery to be used at the construction phase. Dust from construction activity will also pollute the air. The gaseous emissions generated will pollute the air and contribute to the greenhouse effect, which leads to climate change. Sulphur and nitrogen oxides generated from vehicle exhaust emissions have potentially negative health effects. This impact will however not be significant.

f) Public safety and health impacts

Construction activities will generate noise, dust and vibrations that will potentially have adverse negative impacts including disturbance to the neighbourhood and presence of dust that can cause respiratory illnesses. Excavations can also be hazard to the public if not protected and access restricted. Careless driving of vehicles delivering material to site can also cause road traffic accidents. Careless or uncontrolled excavations can impact on stability of foundations of adjacent structures.

g. Security Concerns

The influx of strangers at the site during construction for provision of skilled and unskilled labor could raise security concerns to the surrounding. This is a short-term impact concentrated at the construction phase.

j) HIV and drug abuse

Construction industry typically entails strangers coming to an area as construction workers. Some of the workers may have wayward ways that may lead to HIV cases as well as drug and substance abuse.

j) Intrusion into privacy

The presence of construction activities and people into the area will intrude into privacy of some of the facilities in the neighbourhood of the project site.

j) Increase in traffic

There will be marginal increase in traffic along the roads near the site at the construction phase as trucks delivery materials to the site. This impact will however not be significant at the construction phase as delivery of materials will be done off-peak hours.

12.2. Impacts during Operation and Maintenance phase

12.2.1 Positive impacts at operation and maintenance phase

a) Supply of housing

The proposed project will inject 242 house units into the available housing in Nairobi where housing shortage is a real concern. This is a significant positive impact and a major contribution to the realisation of decent housing.

b) Creation of employment

At the operation and maintenance phase, there will be employment opportunities for people who will work in the facility. These include caretakers, repair and maintenance personnel, cleaners, gardeners, and security guards among others. This is will contribute to the alleviation of unemployment in the country.

b) Business Opportunities

There will be business opportunity for providers of goods and services to the management and staff at the proposed project including transport service providers and food suppliers. The local community will also get business opportunity to sell local products.

c) Income to the investor

There will be income to the proponent from sale and/or lease of housing units. This will help raise standard of living of the beneficiaries.

d) Optimal utilization of the plot

The project will put the plot which is currently not in use into optimal utilization considering that this is a premium area of Nairobi due to its proximity to the City Centre.

12.2.2. Potential negative impacts during operation and maintenance phase

a) Increased demand for utilities

The proposed project will increase the number of people residing in the area. This will cumulatively increase the demand for water, electricity and sewerage. This is a potentially significant impact considering that water is a scarce resource in Nairobi. The proponent intends to mitigate this by harvesting rainwater and drilling a borehole to supplement water from the city water supply. Drilling of the borehole on site will cumulatively lead to lowering of water water table in the area.

On electricity supply, the power the transformer is located just across the road, which will make it easy to connect supply. However, there will be need to liaise with Kenya Power to ensure that the supply is commensurate with the expected load. The proponent will also harness solar energy for use.

b) Generation of solid waste

Various types of solid waste will be generated from the facility at the operation and maintenance phase. These include food (organic) waste, plastics and polythene, scrap metal, waste milk packets, used bottles and general waste. This can potentially cause land or water pollution if not well managed. This is a significant impact considering that waste is a huge menace in Nairobi.

c) **Traffic impacts**

The proposed project will bring in additional vehicular traffic into Rhapta and nearby roads. This will obviously lead to traffic congestion in the area during peak periods. This is a cumulative impact. The area has alternative access roads including Mvuli, East Church Road and David Osieli which ease traffic on Rhapta Road. There is need for the government to expand and diversity means of transport in the city.

d) Generation of waste water

The project will generate wastewater from the kitchens, cleaning activities and from washrooms. The facility will also generate human waste (sewage). This can potentially cause pollution of

surface and ground water if not well managed. It can also be a health hazard to people. The wastewater generated will also add pressure in the area sewerage system although the site is well served by a trunk sewer line along Rhapta Road.

e) Privacy intrusion

As it happens in an area with mixed development with low and highrise buildings, those living in low level buildings will have their privacy intruded into by those residing in high level buildings,. The development trend in Westlands is however changing as more highrise buildings come up due to space constraints and the concept of vertical development takes root.

f) Security issues

Usually increase of people in an area has indirect security impacts as thieves and vandals tend to follow the people. This impact is however not significant as security measures are planned but is cumulative.

12.3. Impacts during Decommissioning phase

12.3.1. Positive impact during decommissioning phase

The only positive impact of decommissioning phase is available of space for other uses including environmental restoration.

12.3.2. Negative impacts during decommissioning phase

The negative impact of decommissioning phase largely mirror those of the construction phase and include –

a) Generation of waste
b) Generation of dust, noise and vibrations with potential negative health and safety impacts
c) Occupational health and safety impacts
d) Traffic impacts
e) Security impacts
f) Use of water and energy

Other negative impacts at the decommissioning phase include -

a) Loss of housing
b) Loss of employment and income

12.4 Impacts analysis

12.4.1 Impact type

The follow guideline was used in characterisation of impacts by nature and type.

Table 3. Impact type

Nature and type	Definition
Positive	Impact that is of benefit to the receiving environment
Neutral	Impact that has no cost or benefit to the receiving environment
Negative	Impact that is considered to represent an adverse change or introduces a new undesirable factor; a cost to the receiving environment
Direct	Impact that results from a direct interaction between a planned project activity and the receiving environment
Indirect	Impact that results from other activities that are encouraged to happen as a consequence of the project activity
Reversible	Both the system and its environment can return to exactly the states they were in by following the reverse path.
Irreversible	The system and its environment cannot return together to exactly the states that they were in.

12.4.2 Impact significance

The significance of impacts was determined by combining (multiplying) the magnitude (or severity) of the impact and the likelihood of the impact occurring. The magnitude was qualitatively classified into four levels (Insignificant, low, medium and high) while likelihood was described qualitatively as low, medium or high.

Table 4 below contains the significance rating matrix.

Table 4. Significance rating matrix

Magnitude	Likelihood and Significance		
	Low	**Medium**	**High**
Insignificant	Negligible	Negligible	Negligible
Low	Negligible	Minor	Minor
Medium	Minor	Moderate	Moderate
High	Moderate	Major	Major

Table 5 below contains significance definitions

Significance	**Meaning**
Negligible/Minor	The system (s) or party (ies) is marginally affected by the proposed development
Average	Medium or short term impacts on the affected system (s) or party (ies). Mitigation is very easy, cheap, not time consuming or unnecessary. For example, a temporary fluctuation in the water table due to water abstraction
Severe	Medium to long term impacts on the affected system (s) or party (ies) that could be mitigated. For example, constructing a narrow road through vegetation with low conservation value
Very severe	An irreversible and permanent change to the affected system (s) or party (ies) which cannot be mitigated. For example, the permanent change to topography resulting from a quarry.

Table 6 below shows an analysis of impacts of the proposed project.

Table 5. Impact analysis matrix

Activity	Environmental/Social Aspect	Environmental /Social Impact	Project phase	Impact Nature & type	Magnitude	Likelihood	Significance
Site preparation	Clearance of grass and removal of some trees	Loss of biodiversity (vegetation)	Construction	Negative, direct, reversible	Low	High	Moderate
Demolition of existing structures	Generation of waste	Land pollution	Construction Decommissioning	Negative, direct, reversible	High	High	Major
	Generation of dust, noise, emissions and vibrations	Health and safety impacts; disturbance; air pollution	Construction Decommissioning	Negative, direct, Irreversible	High	High	Major
	Occupational health and safety hazards	Health and safety impacts	Construction Decommissioning	Negative, direct, reversible	Medium	High	Moderate
	Creation of employment	Income provision	Construction Decommissioning	Positive direct, reversible	Low	High	Moderate
	Carting away of demolition waste	Increase in traffic	Construction Decommissioning	Negative, direct, reversible	Low	High	Moderate

Activity	Environmental/Social Aspect	Environmental /Social Impact	Project phase	Impact Nature & type	Magnitude	Likelihood	Significance
Construction work	Generation of waste	Land pollution	Construction	Negative, direct, reversible	Medium	Medium	Moderate
	Soil disturbance	Soil erosion and destabilisation	Construction	Negative, direct, reversible	Medium	High	Moderate
	Use of water and drilling of borehole	Increased demand for water; lowering of water	Construction, operation and maintenance	Negative, direct, reversible	High	High	Major
	Delivery of construction materials	Traffic increase; possibility of road traffic accidents,	Construction	Negative, direct, reversible	High	High	Major
	Occupational health and safety hazards	Health and safety impacts	Construction Decommissioning	Negative, direct, reversible	High	High	Major
	Generation of dust, noise, emissions and vibrations	Health and safety impacts;	Construction Decommissioning	Negative, direct, Irreversible	High	High	Major

		disturbance; air pollution					
	Presence of strangers in the area	Security concerns; intrusion into neighbours privacy	Construction	Negative, indirect, reversible	Low	High	Moderate
Construction work	Social interactions	HIV/AIDS; Alcohol and drug abuse	Construction	Negative; indirect; irreversible	Medium	Medium	Moderate
	Creation of employment	Income provision	Construction	Positive direct, reversible	High	High	Major
Occupancy of the houses	Use of water and electricity	Increased demand for water; lowering of water	Operation and maintenance	Negative, direct, reversible	High	High	Major
	Use of vehicles	Traffic increase; possibility of road traffic accidents, air pollution	Operation and maintenance	Negative, direct, reversible	High	High	Major
	Generation of wastes	Land and water pollution; public health impacts	Operation and maintenance	Negative, direct, irreversible	High	High	Major

	High rise building	Intrusion of privacy ; adverse aesthetics; light penetration interference	Operation and maintenance	Negative, direct, irreversible	High	High	Major
	Generation of storm water	Pressure on storm water drainage	Operation and maintenance	Negative; direct; irreversible	High	High	Major
	Provision of housing	Alleviation of housing and provision of decent shelter to Kenyans	Operation and maintenance	Positive; direct; irreversible	High	High	Major
	Creation of employment	Income provision	Operation and maintenance	Positive direct, reversible	Medium	Medium	Moderate
	Additional customers for local businesses	Business growth	Operation and maintenance	Positive direct, reversible	Medium	Medium	Moderate
	Income generation to landlords/owners	Improved economic and social wellbeing	Operation and maintenance	Positive direct, reversible	High	High	Major

12.4.3 Statement of Impact Significance

From the analysis of environment and social impacts in section 12.4.2 above, the proposed project has major positive and negative significant impacts. The major significant positive impacts are creation of employment at the construction phase, and the provision of housing and income generation at the operation and maintenance phase.

The major significant negative impacts are generation of wastes which will potentially cause land and water pollution; generation of wastewater and storm water that will increase pressure on the sewer system and storm water drainage, and use of water and energy that will increase pressure on utilities. The other major significant negative impacts include neighbourhood disturbance and adverse safety and health impacts from generation of noise, dust, emissions and vibrations mainly at the construction phase, as well as increase in traffic at construction and operation project phases.

The identified environmental and social impacts can be mitigated by implementing the mitigation measures provided in the Environmental Management and Monitoring Plan.

13.0 Impact Mitigation and Environmental Management Plan

This EIA study has identified negative environmental and socio-economic impacts arising from the proposed development, which make it mandatory to incorporate and undertake impact mitigation measures at all phases of the project cycle, right from the design stage. The matrix below specifies the Environmental Management and Monitoring Plan (EMP) for the proposed Project. It is worth emphasizing that the mitigation measures specified in the EMP must be undertaken at all phases of the project right from planning and commencement up to the decommissioning phase.

Table 6. Environmental and Social Management Plan

The Environmental and social management plan is designed for the planning, construction and operation phases of the proposed project.

Table 7. Environmental Management and Monitoring Plan

Aspects	Potential impacts	Mitigation measures	Project phase	Responsibility	Cost estimate (KES)	Monitoring and achievement indicators
Clearance of grass and removal of some trees for site readiness	Loss of biodiversity (vegetation); destruction of microhabitat	○ Maximize on open spaces and retain some trees on the plot ○ Plant indigenous trees at open spaces. ○ Support initiatives in the neighborhood that aim to increase tree cover (tree planting activities)	Design and planning phase, Construction phase, Operation phase and decommissioning phase	Project proponent and contractor	Approx.50, 000 for the tree seedlings and planting.	Number of trees on the property. Number of tree seedlings donated to the neighborhood (records)
Excavation works for foundations	Soil disturbance; safety and health impacts; wastes generation	○ Ensure proper embankment is done for excavated area ○ Site fencing off ○ Backfilling with appropriate material to structural engineer's satisfaction ○ Soil conservation measures such as landscaping	Construction phase, decommissioning phase	Project proponent and contractor	In project budget	Evidence of soil stabilization; No complaints from neighbours

		○ Undertake dust control measures ○ Undertake excavation works only during the day ○ Provide safety and health measures at site				
Generation of solid waste	Land & water pollution; public health impacts	○ Provide waste receptacles at site and ensure they are color coded ○ Engage NEMA approved offsite waste handler ○ Put into use waste tracking forms signed every time wastes are collected from the site. ○ Ensure waste segregation is done on site ○ Embrace the waste management hierarchy at site i.e. avoidance, reduction, reuse, repair, refurbishment, recycling, recovery and finally treatment for safe disposal ○ Sensitize workers and residents on waste management ○ Avoid piling up of waste on site	Construction Operation and maintenance, decommissioning	Project proponent, contractor, workers and residents	Approx. 20,000 per month	Waste disposal records

Generation of effluent	Land & water pollution; public health impacts; pressure on utilities	○ The development will be connected to the Nairobi County sewer line ○ Ensure preventive maintenance of the wastewater and sewerage reticulation system.	Construction Operation and maintenance phase	Project proponent, contractor, and residents	In project capital, repair and maintenance cost	Waste disposal records
Use of water and electricity	Increased demand for water and electricity and pressure on utilities	○ Harness solar energy to complement mains ○ Liaise with Kenya Power to supply sufficient power commensurate with demand/load ○ Invest in energy saving infrastructure ○ Optimize on natural lighting ○ Harvest rainwater with adequate storage tanks. ○ Monitor energy and water use (install water and energy meters) ○ Sensitize workers and occupants on energy use and saving initiatives. ○ Adhere to the conditions of water permit for the planned borehole	Construction Operation and maintenance phase	Project proponent, contractor, and residents	Energy and water bills	Water and energy use monitoring records

Generation of noise, dust, gaseous emissions and vibrations	Air pollution, public disturbance; public health and safety impacts; occupational safety and health impacts	• Carrying out construction and other works only during the day (normal working hours) • Use of dust control measures such as wetting and netting • Ensure site is well secured and access restricted. • Adhere to conditions of approval by NEMA, NCCG and other authorities	Construction, Operation and maintenance, decommissioning	Project proponent, contractor	In project budget	No complaints from neighbours and improvement notices from authorities; work plans
Increase in vehicular traffic	Traffic jams on nearby roads; possibility of accidents	• Implement recommendations the traffic impact assessment report • Ensure materials are delivered off-peak hours • Ensure all vehicles are parked within the plot • Have a traffic marshal and safety signage when trucks are delivering materials or carting off waste	Construction, Operation and maintenance, decommissioning	Project proponent, contractor	In project budget	Traffic flow; incident records
Occupational hazards	Occupational injuries	• Comply with the provisions of OSHA 2007 and its subsidiary legislations • Training and awareness to staff about safety and health	Construction, Operation and maintenance, decommissioning	Project proponent, contractor, workers	Approx. 100,000 annual OSH budget	Safety and health reports Records of training and awareness to staff

		• Register the site with DOSHS as a construction site • Appoint a competent site safety supervisor • Develop and implement an emergency response plan • Sensitize staff on safety and health • Develop, implement and monitor safe working procedures • Appoint and train fire marshals, and first aiders. • Provide fully stock first aid kit • Develop guidelines on staff and visitor safety with respect to workplace. • Provide firefighting equipment including fire extinguishers, • Workers to be adequately insured against accidents. Ensure that the workers are registered with SHIF and NSSF and remits appropriate fee.				

		• Provide adequate welfare facilities on site including first aid kit, drinking water, changing rooms and sanitary conveniences • Ensure that machinery, equipment, PPE, appliances and tools to be used comply with the prescribed safety and health standards and be appropriately installed, maintained and safeguarded • Ensure that materials are stored or stacked in such manner as to ensure their stability and prevent any fall or collapse.				
Presence of strangers in the area	Security concerns; intrusion into neighbours privacy	• Ensure all construction workers are registered with the area chief's office • Join local residents *nyumba kumi* community • Adhere to the area residents association security requirement • Sensitize workers on security • Ensure site is well secured	Construction, Operation and maintenance, decommissioning	Project proponent, contractor, workers	In project budget	Security incident reports

14.0 Project Decommissioning Phase

This is an important phase in a project cycle which comes when the lifespan of a project has come to an end. If this is to be done, it would entail demolition of the building and associated infrastructure.

The following plan would be followed in the event of future decommissioning of the development.

Table 8: Impact Mitigation at the decommissioning phase

Aspects/ Potential impacts	**Mitigation methods**	**Responsibility**	**Measure**
Demolition of facilities including effluent system	○ Careful demolition with respect to a clean and healthy environment.	Proponent and contractor	Physical observation Records
Generation of solid wastes	○ Ensure waste is disposed of in accordance with the EMCA, waste management regulations, 2006 with preference to re-use of materials	Proponent and contractor	Physical observation
Soil disturbance	○ Ensure that activities are undertaken with minimal earthworks. ○ Restore affected ground to original or better state	Proponent and contractor	Physical observation
Health and safety aspects	○ Sensitize staff on health and safety ○ Provide suitable PPE & enforce use ○ Provide well stocked first aid kit and trained first aider at the facility	Proponent and workers	Safety records Records of accidents/incidents
Site restoration	○ Ensure site is restored to original or better state by tree planting and landscaping among others: make use of local indigenous trees	Project proponent	Physical observations

15.0 Action Plan to Prevent Foreseeable Accidents

Accidents could occur at any stage of the project cycle. The following action plan will be employed to prevent occupational and public accidents in the undertaking of the proposed project.

Table 9. Accidents prevention action plan

Hazard	Safety and Health risk	Preventive safety measure	Responsibility	Timing	Cost estimate (KES)
Noise	Hearing loss; interference with communication leading to accidents; disturbance	○ Provide suitable PPE workers	Contractor; workers	Construction phase	20,000 for PPE
Dust and gaseous emissions	Visibility, respiratory diseases	○ Provide suitable PPE workers	Contractor; workers	Construction phase	In PPE budget
Electricity	Electrical burns, shock or electrocution	○ Ensure power tools and equipment are safely supplied with electricity and are well maintained ○ Ensure safe connection to electricity from Kenya Power ○ Provide suitable PPE to workers ○ Sensitize workers on electrical safety ○ Observe power way leave clearances	Contractor; workers	Construction; operation phase	In maintenance budget
Fire	Burns, loss of lives damage to property	○ Provide firefighting equipment at the site ○ Train workers on fire safety	Contractor, workers, residents. Developer	Construction; operation phase	Approx. 200,000 for fire equipment

		○ Ensure safe handling and storage of flammable substances ○ Ensure safe electricity connection			
Work at height	Death or serious injuries from falls	○ Sensitize workers on safe working at height ○ Devise and implement work safety procedures for work at height ○ Provide suitable and safe scaffolding and ensure they are erected by competent persons ○ Provide suitable tools, equipment and PPE for work at height ○ Enforce safety measures for work at height ○ Ensure all risky areas are fenced off ○ Have in place an emergency response plan	Contractor; workers	Construction phase	50,000 for scaffolding works and safety training
Mechanical hazards	Pricks, cuts, crushes, electrocution etc	○ Sensitize workers on machinery safety ○ Provide suitable PPE to workers ○ Ensure machines are operated by competent persons ○ Ensure machinery are well maintained (preventive maintenance) ○ Ensure safe use of tools and machinery	Contractor; workers	Construction phase	100,000 for machinery maintenance and training

		○ Have in place an emergency response plan			
Chemical hazards such as paints, thinner	Occupational diseases	○ Provide suitable PPE to workers ○ Sensitize workers on chemical safety ○ Follow safety and health measures outlined in the chemical safety data sheets ○ Monitor workers' health and safety	Contractor; workers	Construction phase	In safety and health budget
Ergonomic hazards including manual materials handling	Musculoskeletal injuries and disorders	○ Sensitize workers on safe manual materials handling ○ Provide assistive equipment for transporting articles and materials ○ Ensure good work planning with sufficient breaks	Contractor; workers	Construction phase	In safety and health budget
Unsafe driving	Road crashes	○ Enforce safe driving rules ○ Adhere to traffic Act ○ Ensure vehicles are well maintained ○ Optimize on off-peak hours for delivery of materials ○ Ensure all vehicles are parked within the property ○ Station a traffic marshal on Rhapta Road during entry and exit of trucks	Contractor; workers	Construction phase	Approx. 100,000.

		○ Liaise with KURA for possible erection of a speed bump on Rhapta Road			

16.0 Climate Risks and Vulnerability Assessment and Climate Proofing

The world is presently faced with the global phenomenon of climate change that threatens the future of humans and the environment. In accordance with the Climate Change Act, 2016 a climate risk and vulnerability assessment for the proposed project has been done as presented in table 10 below.

Table 10. Climate Risk and Vulnerability Assessment Matrix

Climate hazard	Likelihood	Impact	Vulnerable population	Risk Level	Risk Controls (Climate Proofing Measures)
Global warming from greenhouse gases	Medium	Medium	General population	Medium	○ Use clean sources of energy ○ Retain trees on site to sequester carbon ○ Avoid open burning of wastes ○ Support tree planting in the community and other parts of the country ○ Ensure handling and disposal of wastes following the wastes hierarchy
Water outage due to increased demand	High	High	Residents of the property, neighbours	High	○ Harvest rainwater ○ Install efficient water reticulation system ○ Monitor water use ○ Sensitize workers and residents on water saving ○ Lobby responsible authorities for water supply expansion
Flooding from poor management of storm water	Low	Medium	Residents, neighbours	Low	○ Ensure safe connection and reticulation of storm water as per design ○ Ensure proper disposal of wastes

					○ Ensure storm water drainage system is well maintained ○ Harvest roof water catchment
Fire	Low	High	Residents and property	Low	○ Provide firefighting equipment at the site ○ Train workers on fire safety ○ Ensure safe handling and storage of flammable substances ○ Ensure safe electricity connection ○ Carry out periodic electrical inspection and preventive maintenance
Drought	Low	Medium	Larger population	Low	○ Conserve water ○ Harvest rainwater ○ Plant trees to moderate climate
Extreme heat (urban heat island)	High	Medium	Larger population	High	○ Use reflective (high albedo) construction materials ○ Maintain vegetation and replant in open spaces ○ Use clean energy sources
Lowering of water table	High	High	Residents, neighbours	High	○ Diversity water sources especially rainwater harvesting ○ Monitor borehole water level by use of a piezometer ○ Underwater water conservation measures such as dual flush cisterns and automatic taps

17.0 Conclusions and Recommendations

17.1 Conclusion

The EIA study has found that the proposed project has major positive and negative significant impacts. The major significant positive impacts are creation of employment and provision of housing. The major significant negative impacts are generation of wastes which will potentially cause land and water pollution; generation of wastewater and storm water that will increase pressure on the sewer system and storm water drainage, and use of water and energy that will increase pressure on utilities. The other major significant negative impacts include neighbourhood disturbance and adverse safety and health impacts from generation of noise, dust, emissions and vibrations mainly at the construction phase, as well as increase in traffic at construction and operation project phases. The identified environmental and social impacts can be mitigated by implementing the mitigation measures provided in the Environmental Management and Monitoring Plan.

17.2 Recommendations

In undertaking the proposed development, the proponent must implement the mitigation measures spelt out in the Environmental Management Plan, Accidents prevention plan and the measures spelt out in the climate risk and vulnerability assessment matrix. The proponent should incorporate views and inputs of neighbours and members of the public who participated in the EIA study. The proponent must also strictly adhere to approval conditions by NEMA and other regulatory authorities. The proponent should lobby for expansion of public utilities in the area and work with existing initiatives within the neighborhood to improve environmental standards and develop best practices for sustainable development.

18.0 References

C40 Cities Leadership Group (2024). Climate Change Risk Assessment Guidance and Screening Template

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Kenya, Republic of: Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019

Kenya, Republic of: Environmental Management and Coordination (Water Quality) Regulations, 2006

Kenya, Republic of: Environmental Management and Coordination (Waste Management) Regulations, 2006

Republic of Kenya: The Occupational Safety and Health Act, 2007

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Government of Kenya, (2000). Environmental Management and Coordination Act No 8 of 1999. Kenya Gazette Supplement. Government Printers, Nairobi.

Kenya Gazette Supplement No 56, Legal notice No 101, Government printers Nairobi.

Government of Kenya The Local Government Act (CAP 265)

Government of Kenya The Physical Planning and Land Use Act 2019

Nairobi City County Development Control Policy (2021)

Nairobi City County - County Integrated Development Plan, 2023 – 2027

Traffic Impact Assessment Report of the proposed development

Utilities study report of the proposed development

Geotechnical investigations report of the proposed development

Appendices

1. Lead Expert Practicing License
2. Firm of Experts Licence
3. Copies of Land Title deed
4. Certificate of Registration of the Company
5. Completed public participation questionnaires
6. Minutes of the public participation meeting
7. Letter of invitation to neighbours for public participation exercise
8. Objection by Rhapta Road association to attend scheduled public participation
9. Project designs
10. Project summary bill of quantities
11. Change of user
12. NCC approval letter
13. TOR approved by NEMA
14. Traffic Impact Assessment Report