ENVIRONMENT & SOCIAL IMPACT ASSESSMENT STUDY REPORT

FOR

PROPOSED KISAUNI RESIDENTIAL DEVELOPMENT ON PLOT NO. MN/II/257, KISAUNI, MOMBASA COUNTY

GPS coordinates: Latitude -4.013611°, Longitude 39.692160°

PROPONENT

MYSHA INVESTMENTS LIMITED

P.O BOX 81860-80100

MOMBASA

LEAD ESIA EXPERTS

MUNYUA A. MWENGA

FRED ARONYA

APRIL 2024

PROJECT FACT SHEET

Project Name	Kisauni Mixed-use Development
Proponent	Mysha Investments Limited P.O BOX 81860-80100, MOMBASA KRA PIN P051319894X Email: info@lightways-kenya.com
Report	Environmental and Social Impact Assessment Study Report
Project components	1. 816 Housing Units 2. Retail shops (Commercial Centre) 3. Swimming pool 4. Sports pitch 5. Community hall
Project Cost	Ksh. 1,987,324,126/=
Project site & Footprint	Plot no.MN/II/257 Bakarani , Kisauni, Mombasa County 13.96 Acres 51,840 m^2

ESIA TEAM

Munyua A. Mwenga	Team Leader
Fred Aronya	Environmentalist
Martin Mamboleo	Environmental Economist
Isaiah Wafula	Environmental Planner/GIS Analyst
Victor Odenda	Sociologist

DOCUMENT AUTHENTICATION

This ESIA Project Report has been prepared in accordance with the Environmental Management and Coordination Act (EMCA) 1999 (Rev. 2015), and the Environmental (Impact Assessment and Audit) Regulations for submission to the National Environment Management Authority (NEMA). We the proponent and the ESIA Lead Expert certify that the particulars given in this report are correct to the best of our knowledge.

Prepared by:

Signed: _____

Date:_____

Munyua A. Mwenga

LEAD EXPERT NEMA REG.NO 0340

Signed: _____

Date:_____

Fred Aronya

LEAD EXPERT NEMA REG.NO 0668

PROPONENT

MYSHA INVESTMENTS LIMITED
P.O BOX 81860-80100
MOMBASA

Signed:…… Date: ……

NON–TECHNICAL SUMMARY

Mysha Investments Ltd propose to develop a residential development with 816 low-cost housing units on a greenfield site located off Old Mombasa-Malindi road, Bakarani area, Kisauni in Mombasa County. The project proposal entails the construction of 816 housing units in 34 blocks each being 6 storey high with supporting building services in a gated community format for subsequent sale to the general public under the affordable housing scheme. The housing project christened Santana is to be developed on Plot No. MN/II/257 held by Mysha Investment Ltd and comprises 13.96 acres in total divided into two by a public access road.

Table 1: Summary of Housing Typology

Housing Type	No. of blocks	No. of Units	No. of Floors
1 bedroom	6	144	6
2 bedroom	14	336	6
3 bedroom	14	336	6
Parking spaces - 676			
Total	**34**	**816**	**-**

The project is envisaged to have the following merits: addition of modern housing stock, Improved infrastructure social amenities, Increase home ownership &Increased security within the project area. The project proposal has some likely adverse environmental concerns for which sufficient mitigation measures have been proposed to ensure low residual impacts as summarized below:

Table 2: Summary of Operational & Construction Phase Mitigation Measures

Environmental Concerns	Operational phase safeguards
Stormwater management	1. Regular maintenance of storm drain infrastructure 2. Desilting of drainage channels & and manholes prior to start of rainy seasons
Solid waste management	3. Installation of waste segregation bins in each of the 34 blocks to collect waste from the housing units 4. Contract NEMA registered waste contractors to handle waste from housing development 5. Encourage residents to segregate waste at source to improve material recovery from waste fractions
Traffic Impact	6. Warning signs to be placed to advise pedestrians and manage their safety when walking internal roads in the housing development. 7. Implement traffic management plan developed for the project
Public safety	8. Post safety guidelines for use of swimming pool.
Water management	9. Ensure prompt repair of leaking pipes; 10. Metering of water at all consumption points; 11. Incorporate water harvesting techniques and matched storage;
Sewage & Wastewater management	12. Routine inspection & maintenance of the sewer treatment plants 13. Disposal of sludge per Hazardous waste regulations 14. Reuse of waste water in landscaping & flush water for water cisterns

Environmental Concerns	Construction phase safeguards
Traffic Impact	1. The timing of the truck arrivals and departures should largely be outside of the commuter peak periods 2. During the construction stages, all trucks are to enter the construction site and not occupy the nearby roads with a traffic control plan 3. Warning signs are to be placed to advise pedestrians and manage their safety when walking across the construction driveways. 4. No machinery or material is to be stored on the footpath or verges or public areas. 5. All material handling is to be done within the site boundaries.
Construction waste	6. Avoid overloading trucks and cover trucks to minimize dust and loss of load from trucks during transportation; 7. For aggregate and sand, use water sprays or covered chutes to reduce dust emission during loading and unloading of materials from barges; 8. Maintain mixing plants in good working condition to reduce emissions from the plant; 9. As far as possible, plan truck trips to material sources and to the sites during low-traffic hours; and 10. Implement safety procedures to reduce the potential for road accidents.
Stormwater management	11. Validate stormwater volumes from Mtopanga Estate/School to ascertain the adequacy of current stormwater infrastructure 12. Undertake rehabilitation & maintenance of existing stormwater infrastructure within the project vicinity.
Noise & vibration pollution	13. Schedule noisy activities during the normal working hours of between 8 am to 5 pm. 14. No work should be undertaken at night or very early in the morning; 15. Switch off idle machines and equipment; 16. Ensure machinery is well serviced to reduce the noise emitted; 17. The contractor should adhere to the provision in the Environmental Management and Coordination (Noise and Excessive Vibration pollution) (control) regulations,2009 18. Provide workers with appropriate PPEs when working in noisy environments e.g. ear plugs 19. Construction waste is not to enter the biophysical or socio-economic environment; and 20. Contractors to have waste management plans to mitigate potential impacts
Air pollution	21. Practice dust management techniques, including watering and spraying to suppress dust; 22. Move earth and sand in covered vehicles/transport to avoid it being blown by wind increasing suspended particulate matter in the atmosphere; 23. All power plants are to be of good condition with acceptable smoke emissions; 24. Set up dust barriers/screens at strategic locations; and 25. Provide and enforce the use of Personal Protective Equipment (PPE) for staff.
Water shortages	26. The contractor should sensitize construction workers on the importance of proper water management through clerks of works by having talks with them when doing their rounds around the site; 27. Replace or repair leaking pipes supplying water to the construction sites to minimize wastage; 28. The Contractor should ensure the provision of adequate water storage facilities on the construction site to meet project needs during periods of high demand externally and refill storage tanks during periods of low demand;

Environmental Concerns	Construction phase safeguards
Pollution/contamination of ground & surface water	29. No mixing of concrete to occur on exposed / bare ground. Concrete mixing should be done on a bounded surface to avoid soil pollution and contaminating the ground and surface water; 30. Appropriate containment structures are to be provided to store contaminated water from the construction site. The contractor should ensure this water are properly disposed of and not allowed to be drained on site; 31. The concrete batching area should be bounded to prevent contamination of soils and surface water features; 32. All fuel storage to be appropriately bunded and provided with a canopy; and 33. Ablutions for construction workers to enable proper disposal of faecal matter and avoid contamination of surface water features which could be a cause of waterborne diseases.
Occupational Health & Safety	34. The contractor should ensure registration of all construction works by the Director, Directorate of Occupational Health and Safety Services (DOHSS)in compliance with the Buildings and Works of Construction Engineering Rules,1984; 35. The contractor should contract a qualified Health and Safety advisor to conduct training and monitoring of construction works; 36. The contractor should provide a standard First Aid Kit on site; 37. The Contractor should train several workers in First Aid depending on the number of workers on site as stipulated in the First Aid Rules 1977 through DOSHS-certified First Training institutions e.g. Red Cross, St. John Ambulance

This ESIA study recommends that during project implementation, the mitigation measures identified and recommended be closely monitored to ensure that they are being undertaken. All contracts for the construction of any of the proposed project components must stipulate the responsibilities of the contractor for implementing the proposed mitigation measures. In this regard, the Environmental and Social Management Plans (EMPs) developed in this main ESIA report consider the impacts of construction and the operation phases of all housing unit components. The core responsibilities during the implementation of the ESMP have been allocated.

Table of Contents

TABLES

PLATES

FIGURES

ABBREVIATIONS & ACRONYMS

CBD	Convention on Biological Diversity
COP	Contracting Parties
EMCA	Environmental Management Coordination Act
EMP	Environmental Management Plan
EPRA	Energy & Petroleum Regulatory Authority
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GIS	Geographical Information System
HIV/AIDs	Human Immunodeficiency Virus/Acquired Immune Deficiency
INLUG	Integrated National Land-use Guidelines
ISWMS	Integrated Solid Waste Management System
KES	Kenya Shilling
KFS	Kenya Forest Service
KPLC	Kenya Power and Lighting Company
MOWASCO	Mombasa Water and Sanitation Company
NCA	National Construction Authority
NEAP	National Environmental Action Plan
NEC	National Environment Council
NECC	National Environment Complaints Committee
NEMA	National Environment Management Authority
NET	National Environmental Tribunal
NHC	National Housing Corporation
NHDF	National Housing Development Fund
NLUP	National Land Use Policy
NMT	None Motorized Transport
OSH	Occupational Safety and Health
PIN	Personal Identification Number
PPE	Personal Protective Equipment
SERC	Standards and Enforcement Review Committee
TOR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
WRA	Water Resources Authority

1 INTRODUCTION

This Environmental and Social Impact Assessment Study Report is prepared on behalf of Mysha Investments Ltd Under section 58 Environment Management and Coordination Act (EMCA), 1999 and the second schedule (1(c) Major changes in land use) of EMCA, 1999, the proposed project requires an EIA before it can start. Under EMCA, any activity out of character with its surroundings and likely to cause a substantial impact on the environment requires an Environmental Impact Assessment (EIA) Report.

1.1. Project Background

The proposed project is located on Plot No. 1542/I/MN, situated in Kisauni is owned by Mysha Investments Ltd. (Annex 1 shows a copy of the title for the project area). The project site is accessible via Old Malindi Road, Bakarani area. Figure 1 below shows the project footprint of the proposed site for implementation of the proposed mixed-use development project.

Figure 1: Project site footprint

This ESIA study report has been prepared based on the findings of the screening and scoping study, field visits, public participation meetings and information collected from both primary and secondary sources including the information provided by the project proponent.

1.2. Project Proponent

The project proponent is Mysha Investments Ltd, a locally registered company. Annex 2 (certificate of incorporation and KRA PIN certificate). The proponent has teamed up with Magan Homes Ltd to develop the project.

1.3. Project Description

The Kisauni residential development project involves the construction of 816 housing units on a total of 34 blocks each being 6 storeys high and retail shops with supporting building services. The services include 2 wastewater treatment plants, a swimming pool, vehicle parking and other building services. The whole project site covers a total of 13.96 acres. The project site is divided by a public road into 2 plots each roughly 6.9 acres. Phase 1 will be developed on the left wing of the site and Phase 2 will be developed on the right wing of the site. The residential units once developed will be put in the market for sale. The housing units will be supported by auxiliary services that include; a wastewater treatment plant (WWTP) for each phase, a shared swimming pool, a sports pitch and vehicle parking for residents. The road-facing the boundaries of the project site will be lined with retail shops.

1.4. Project's Objectives

The objectives of the Kisauni Residential Development are

1. To develop a gate community housing project;
2. To sell housing units in the market; and
3. Positively impact the social economic outlook of Kisauni Sub-county

1.5. Objectives of ESIA the study

1.5.1. General Objective

The general objective of the ESIA study is to carry out a systematic examination of the present environmental situation within the project area to determine the likely impacts of the proposed Kisauni Residential Development with a view of improving the sustainability of the project.

1.5.2. Specific Objectives of the ESIA Study

(i) To highlight environmental issues of the proposed project with a view to guiding policymakers, planners, stakeholders and government agencies to help them understand the implications of the proposed project on environmental elements within the Kisauni project area;
(ii) To review existing legal institutional, and policy framework relevant to the proposed project;
(iii) To find out impacts associated with the implementation of the proposed housing units at Kisauni to suggest mitigation measures for the negative impacts;
(iv) To assess and give recommendations on the various mitigation measures to be taken to reduce possible negative impacts on the proposed piece of land for development;
(v) Analyse occupational health and safety issues associated with the proposed project;
(vi) To determine the compatibility of the proposed development with the neighbouring land uses evaluate local environmental conditions;
(vii) Facilitating meetings for the stakeholders to air their views;
(viii) Identifying and contacting the project stakeholders to seek their views on the proposed project;
(ix) To assess the relative importance of the impacts of alternative plans, design and sites;
(x) To generate baseline data for monitoring and evaluation of how well the proposed mitigation measures are being implemented during the project operation period;

(xi) To develop an Environmental and Social Management Plan (ESMP) to guide in decision making and for future auditing;
(xii) To raise stakeholder awareness on potential impacts of the project on the environment with a view to making them understand the implication of the project in their environment;
(xiii) To develop an ESIA report in conformity with the EMCA 1999, Environmental (Impact Assessment and Audit) Regulations 2003 and EMCA (amendment) 2015 and legislation under it; and
(xiv) Submission of the final EIA report to NEMA and subsequent follow up to obtain relevant authorization/permit in order for the project to commence.

This ESIA Study Report, therefore, details the positive and negative effects of the development on the project environment and recommends appropriate environmental and social measures to minimize any undesirable effects resulting from the project.

1.6. Terms of Reference (ToR)

The following Terms of Reference apply to the project:
(i) Screening and scoping.
(ii) Establishing the suitability of the proposed location for the proposed housing development
(iii) Carry out a literature review.
(iv) Carry out preliminary fieldwork.
(v) Prepare the TOR for submission to NEMA for consideration and approval.
(vi) Undertake detailed fieldwork.
(vii) Carry out baseline investigations and analyses.
(viii) Hold meetings with the project proponent, other project consultants, relevant regulatory government bodies, and stakeholders.
(ix) Carry out a systematic environmental assessment at the proposed project site and the surrounding area in line with established standards and laws.
(x) Provide a description of the proposed activities throughout the entire implementation process of the project with a special focus on potential impacts to the surrounding environment and facilities.
(xi) Develop an Environmental Management Plan and cost estimates for the proposed housing development.
(xii) Produce an Environmental and Social Impact Assessment report that contains among other issues potential negative and positive impacts and recommendation of appropriate mitigation measures to minimize or prevent adverse impacts.

A copy of the terms of reference approval letter is attached in appendix 4

1.7. Methodology

The methodology used in the ESIA Study included the following.
i. A site reconnaissance and visual survey to determine the baseline information of the project area;
ii. Comparative study of the project with existing land uses in the neighbourhood;
iii. Reviewing and analysis of the project documents;
iv. Discussion with the proponent and the design team;
v. Assessment of the site to detail the various existing and likely impacts;
vi. Assessment of health and safety issues;
vii. Seeking public views through interviews and questionnaire administration;
viii. Proposal of mitigation measures to minimize any negative impacts; and
ix. Preparation and submission of ESIA study report to NEMA.

1.7.1. Screening

Environmental screening was applied at the preliminary stage to determine whether the proposed development required an Environmental Impact Assessment. With reference to the second schedule of EMCA (1999), the proposed project was identified as among those that requires Environmental Impact Assessment so as to ensure that negative impacts from the project are mitigated as the positive ones are amplified.

1.7.2. Approaches to undertaking the ESIA

This ESIA Project Report has been prepared in accordance with the Environmental (Impact Assessment and Audit) Regulations of 2003. It is also guided by the general principles of green buildings. The study methodology also comprised the following activities:

1. Desktop study;
2. Field investigations of air, noise and groundwater
3. Public meetings & neighbourhood consultations

1.7.2.1. Desktop Study

The desktop study involved:

(i) Initial meetings with project architects and engineers to discuss the proposed project, including activity options under consideration;
(ii) Preparation of a checklist that consisted of a simple catalogue of environmental factors, which were compared with the activities to be performed;
(iii) Collection and review of baseline data, maps, reports and other relevant information on the existing environmental and social conditions of the project area;
(iv) Review of existing legislation, regulation and policies relevant to the proposed project; and
(v) Review of proposed project engineering designs and construction inputs, including anticipated technical processes.

1.7.2.2. Field investigations

Field investigations involved:

(i) The site walks within the project area and the neighbouring areas that are within the zone influenced by the project;
(ii) Taking photographs of significant aspects to assist in describing the baseline environmental and social conditions of the project area and its influence zone;
(iii) Taking the site coordinates and the area elevation;
(iv) Interviews with representatives of relevant key regulatory authorities within the project area and interested and affected parties mainly within the project influence zone; and
(v) Filling in the questionnaires to facilitate environmental impact data collection.

The aim of the field investigations was to verify information and data collected during the desktop study and to collect any new information that may have been important in the assessment of impacts and design of mitigation measures.

1.7.2.3. Report Preparation & Outline

The ESIA study report was prepared and compiled and a draft report discussed with the proponent. Thereafter, the findings of the assessment were discussed amongst the proponent, the project lead consultant and the ESIA experts. This was necessary to appreciate the various responsibilities and modalities of implementing the proposed project. The final report was then prepared and submitted to the proponent for endorsement.

1.8. Potential Project Impacts

1.8.1. Potential Positive Impacts

The positive impacts associated with the proposed project include the following among others:

1. Enhanced land use; the proposed project will put the land to a more productive use than it is now
2. Generation of revenue for both the government and developers
3. Improved security in the area
4. Development of social amenities
5. Employment opportunities
6. Development of local infrastructure
7. Enhancement of other businesses

1.8.2. Potential Negative Impacts

1. Stormwater generation
2. Air Pollution, Particles and Dust Emission
3. Noise and Excessive Vibrations
4. Traffic impact
5. Solid Waste Generation
6. Water Demand and Usage
7. Energy Demand and Usage
8. Increase Generation of Effluent/Liquid Waste
9. Occupational Health and Safety

1.9. Public Consultations

Public consultations are critical in conducting an effective ESIA. Public consultations consisted of the use of public meetings, key informant interviews and questionnaires. Compilation for public consultation feedback is found in Chapter 6 of this report.

1.10. Constraints & Limitations

The information presented in this report is by and large consistent with the data and information gathered through the various sources and approaches outlined above. However, just as in any study, the exercise experienced a number of constraints and as a result, there could be some gaps of information in the report as the consultants could not exhaust the collection of all primary data. Data on the stormwater volumes for the area & location of all infrastructure was not available at the time of preparing this report. To overcome this data from the modelling of Mtopanga stream was used to infer stormwater volumes.

1.11. Estimated Project Cost

The estimated project cost is Kenya shillings **One billion, nine hundred and eighty-seven million, three hundred and twenty-four thousand, one hundred and twenty-six**. (Ksh**.** 1,987,324,126/=**).** A summary Bill of quantity is attached in appendix 5

1.12. ESIA Study Output

This ESIA study report is prepared for purposes of presenting pertinent information to NEMA for approval and licensing of the project.

2. BASELINE INFORMATION

2.1. Introduction

The following baseline information details on environmental, socio-economic and bio-physical characteristics of the site. This information will provide a benchmark for continued monitoring and assessment of the impact of implementing the proposal on the environment.

2.2. Project Location

The proposed project is located on plot number 1542/I/MN situated at Bakarani near Mtopanga Post Office and abuts the Old Malindi road. It lies between southern latitudes 4° 0' 54.97" and 4° 0' 41.89" and eastern longitudes 39°41' 36.98" and 39°41' 23.84". Administratively, the project site is within Mtopanga ward, Kisauni Sub-county, Mombasa County. Figure 2 below shows the administrative context of the proposed project site.

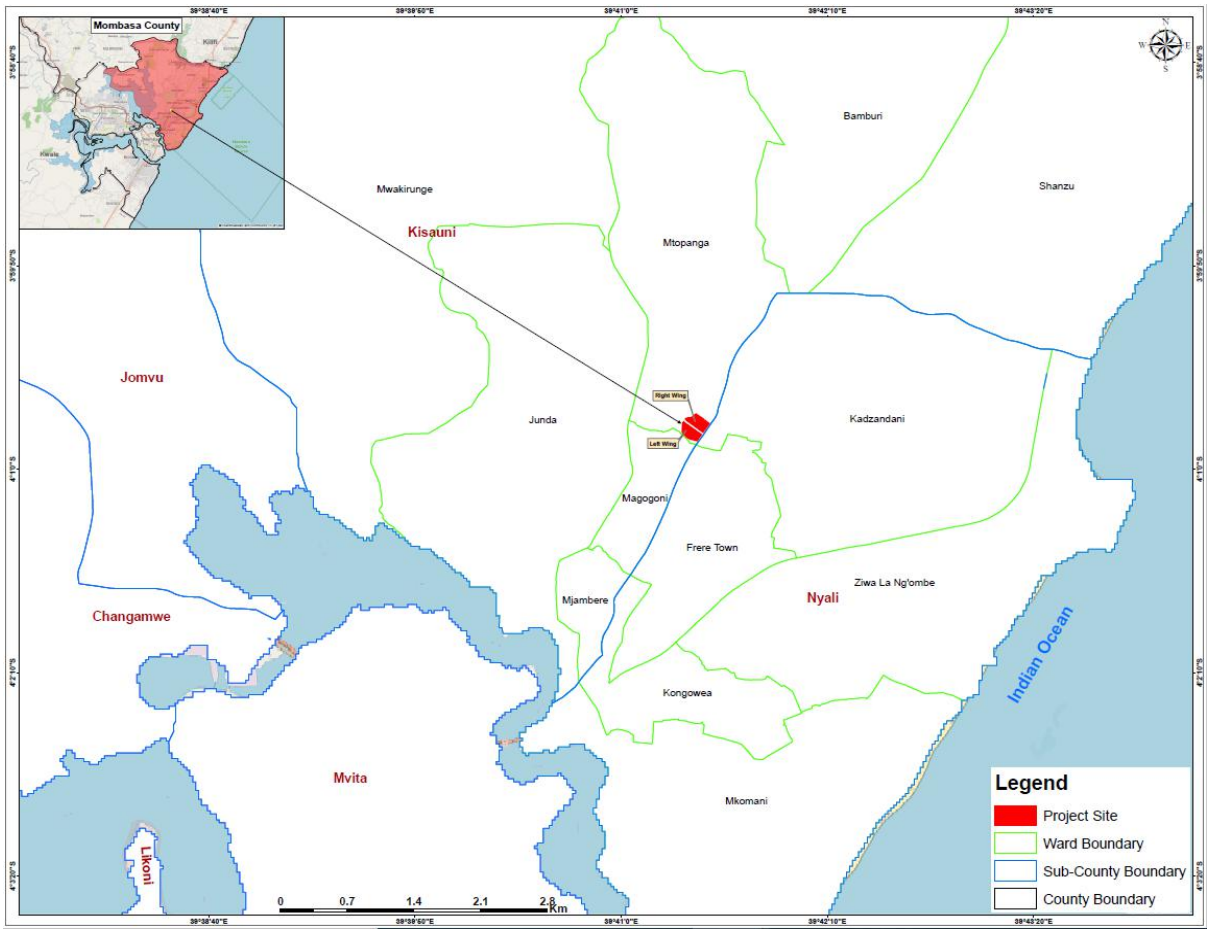

Figure 2: Administrative Context of Project Site

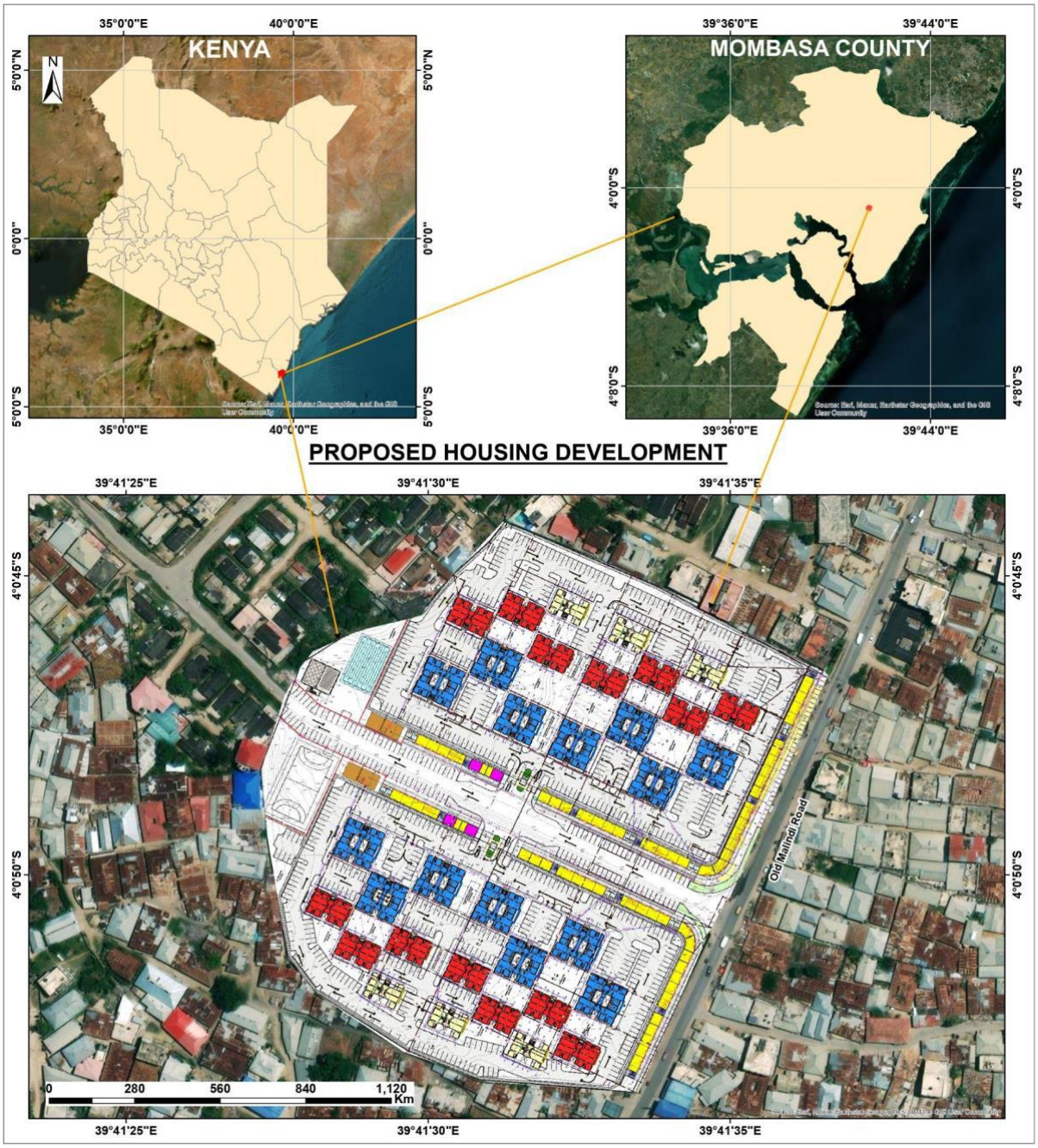

Figure 3: Project location & site layout plan of the proposed Kisauni residential development

2.3. Land Use & Neighbourhood Characterization

Kisauni Sub-county has a total of 83.20 Km² landmass with land uses in the following proportions residential (19.9%), commercial (2.7%), industrial (1%), education (1%) public purpose (4.9%), public utility (0.2%) transport (1.4%), recreational (0.6%) beach (0.9%) agriculture (4.5%) forest (4.1%) and undeveloped land (58.8%). This indicates that most of the land within the subcounty is underutilized and mostly left fallow with low economic value. It is also clear that land under residential use higher compared to other uses an indication of growing demand for residential houses.

The proposed project site is an undeveloped land (greenfield) split into two wings by Mtopanga Estate access road. Both plots are fenced with a masonry wall and access gates. The neighbourhood of the proposed site is characterized by a mix of different uses. However, the dominant land use in the neighbourhood is high-density residential. The building structures are primarily swahili type of houses (having 6 to 12 rooms) with an increasing mix of bungalows and flats.

Plate 1: Rehabilitation facility neighbouring project site & solid waste practices in Mtopanga estate

Plate 2: Existing buildings in proximity to the project site. Water ponding in the right wing of the project site

Plate 3: Swahili houses typology within Mtopanga & Effluent treatment lagoon for Mtopanga Estate

Other land uses in the area include; commercial in the form of corner shops, retail stalls, Rubis Petrol Station, Manoni Community Policing Office, KCB Kisauni Bank, Mtopanga Posta; educational facilities such as Banywan Muslim academy, Kisauni High School, Edenrose Academy, Golden Chariots High School, Magogoni Primary School, which are located in proximity to the site and health facilities such as Montana Hospital, Baraka Community Health Care and Jordan Hospital; religious facilities including St. James Catholic Mtopanga Parish, Masjid Rahma Mosque, Masjid Arafat Mtopanga Mosque and Masjid Answar Sunnah Mosque. There is also a cemetery (Barakani cemetery) neighbouring the project site to the south. Figure 4 below illustrates the land use characterization of the project site neighbouhood.

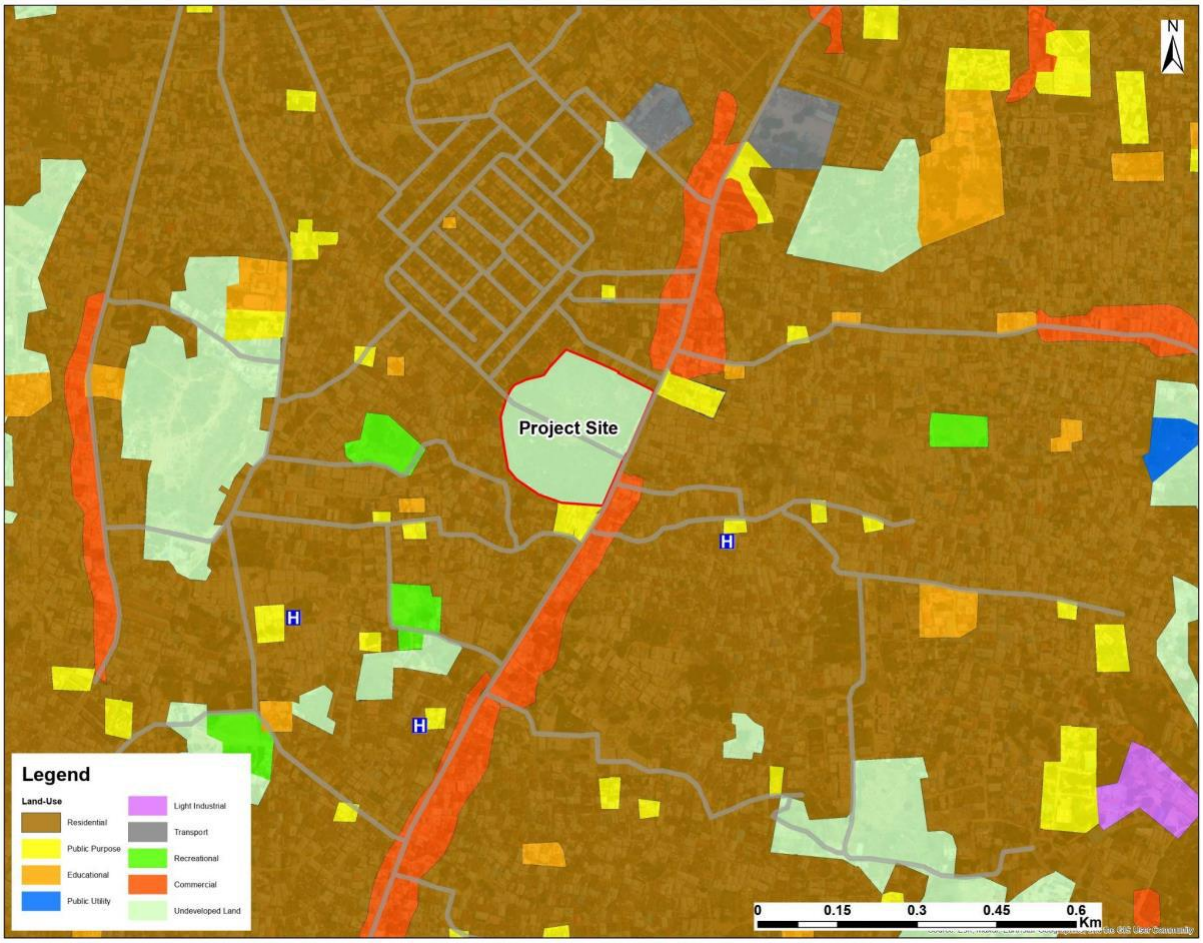

Figure 4: Abutting land uses in the project site locality

2.4. Physical Environment

2.4.1. Climatic Characteristics

Located within Mombasa City, the proposed project area enjoys similar climatic conditions as the entire Mombasa City. The Mombasa lies 23m above sea level Mombasa has a tropical climate. The climate is influenced by monsoon winds with the rainfall pattern being characterized by long rains (April - June with an average of 1,040 mm) and short rains (end of October - December with an average of 240mm). It is warm most of the year, and the winter months give a warmer temperature than summer. April and May are usually the rainy months, while January to February experience minimal rainfall. The temperature here averages 26.7 °C. About 1196 mm of precipitation falls annually. The difference in precipitation between the driest month and the wettest month is 287 mm. The average temperatures vary during the year by 4.1 °C | 39.4 °F.

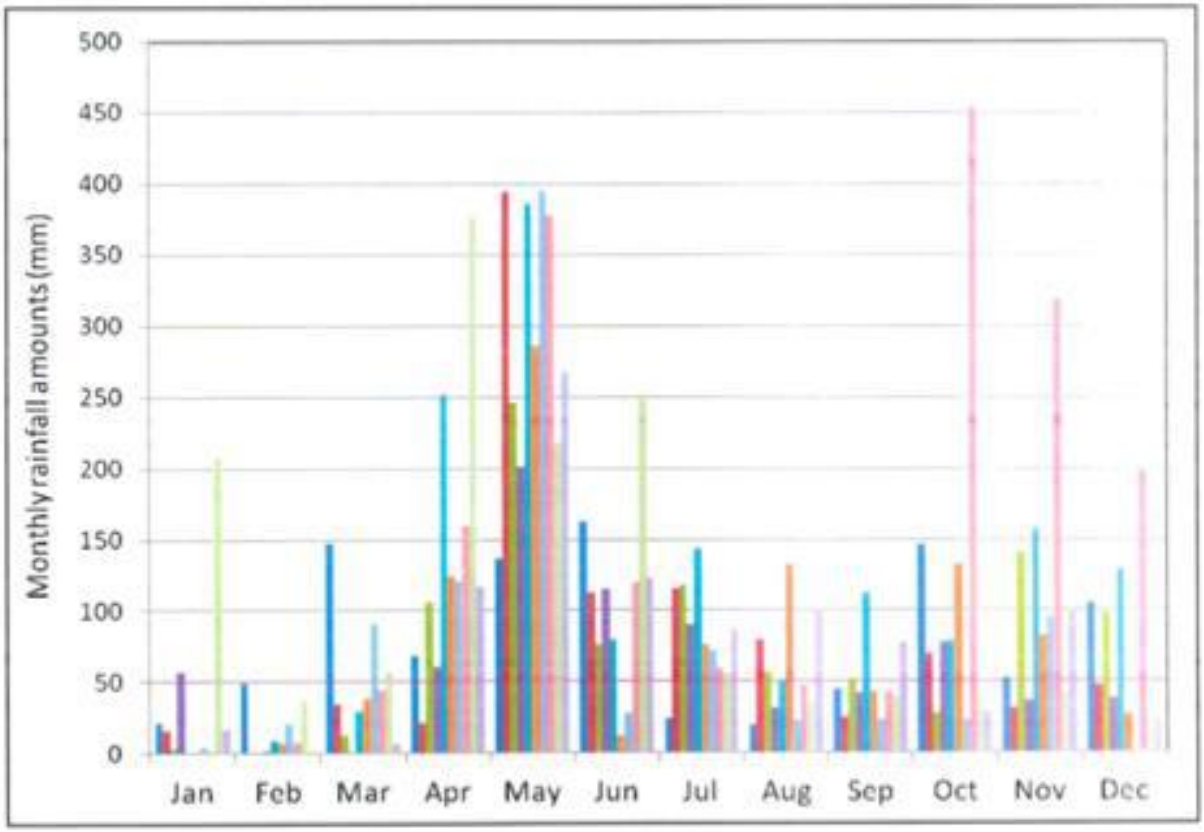

Figure 5: Monthly rainfall distribution in the project area *Source: WRA et al., (2011)*

2.4.2. Topography

The project site falls within Mombasa County, a coastal lowland with extensive flat areas rising gently from 8 meters to 100 meters above sea level in the west mainland region. The site is split into two by a public access road. The altitude of the left-wing ranges from 28.4 m asl to 26 m asl. the right-wing site altitude ranges from 27.6 to 24.8 m asl. Beyond the project site, to the northwest, the land rises to up to 40m asl. This makes a section of the site vulnerable to ponding as surface runoff moves from the upper areas and makes its way to the lower areas of the project site. This necessitates measures to manage flooding.

2.4.3. Geology & Soils

Geomorphologically, the Kenyan coastal zone is an emergent coastline. It has thus been subjected to marine regression since the Jurassic period. Mombasa County, situated along the Kenyan coast, possesses a sedimentary geological landscape shaped by a combination of ancient processes and ongoing geological phenomena. It predominantly lies within the coastal plain, characterized by low-lying terrain formed by highly weathered soils borne from sedimentary deposits. These weathered soils consist of materials like sand, silt, and clay, which have accumulated over millions of years from the erosion and weathering of older rocks from the hinterland.

Bakarani/Mtopanga lies within the broader coastal plain of Mombasa, characterized by relatively low-lying terrain formed by deep weathered sedimentary deposits. The plain consists of an expansive flat land with raised terraces covered mainly by coral limestone and back reef sand deposits that not only provide a firm foundation for construction but also provide building materials. The site adopts the soils developed on unconsolidated sandy deposits in the Magarini formation, composed of sandy to loamy soils (Munga, Kitheka, Mwaguni, Barongo, & Massa, 2005). These are well-drained, very deep, sandy clay loam to sandy clay, with a topsoil of fine sand to sandy loam.

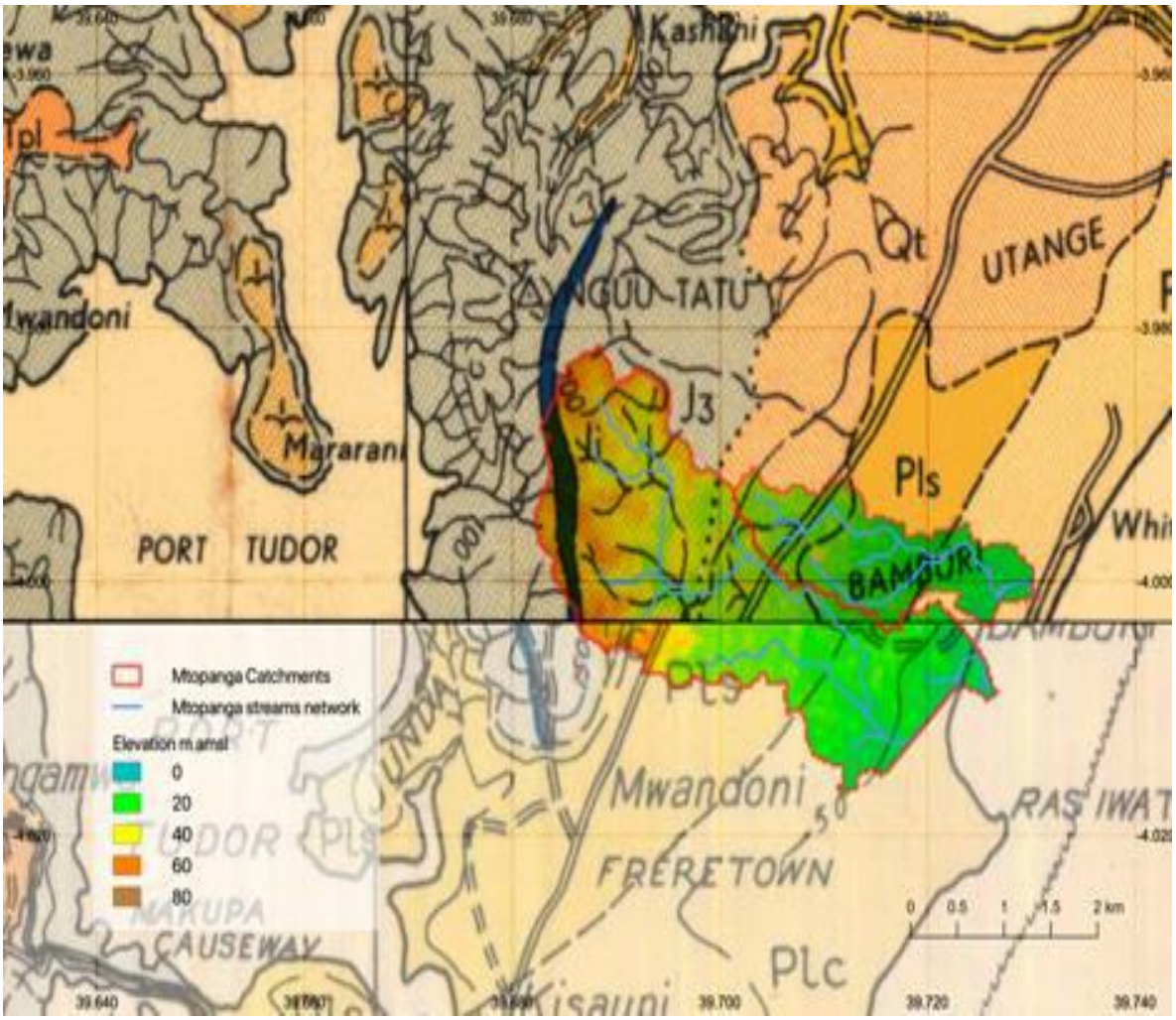

Figure 6: Geology within the project site & Mtopanga catchment basin

2.4.4. Hydrology

A section of the project site is traversed by a natural storm water channel conducting water from the higher elevations of Mtoponga Primary School. This storm water is believed to contribute water to the seasonal Mtopanga stream. The Mtopanga stream traverses through sub-catchment number 3MD1 of the Lower Athi catchment area, 3MD1 is ungauged, that there is no installed Regular Gauging Station (RGS) within the catchment. Mtopanga stream owes its source from Nguuni Nature sanctuary located NE of Kisauni area. It is a seasonal stream that stretches more than 7 Km and drains a catchment area of approximately 7.2 Km^2. There are other seasonal streams neighboring the Mtopanga stream, these include Tsalo, Kashani, Bombo and Hodi hodi streams. Mtopanga stream flows through a mix of land uses which include a vegetated area upstream through a highly populated Kisauni residential area in the mid-section to less populated tidal zone in lower Bamburi area close to the shoreline on the East. The stream's catchment area has been vulnerable to pollution and modification by land use activities. This has completely altered the initial natural flow regime and geometry of the especially along the its mid-sections. The stream drains to the Indian ocean on SE of Kisauni close to pirates public beach

Water Resources

Mombasa County's main source of water supply is in the Mzima Springs found 300 km away in Chyulu hills. These springs are believed to be part of the Kilimanjaro mountain system which generally falls under the Athi River drainage basin. Apart from the Mzima springs, the county and the coastal region, in general, receive surface water supplies from Baricho, Marere & Tiwi boreholes in the south coast area. Generally, Mombasa County receives 130,000 cubic meters of water against a demand of 200,000 cubic meters daily according to NWCPC (2000). Kisauni encounters persistent portable water challenges due to population pressure, and poor maintenance of

existing water supply networks. Though the area is geologically rich in groundwater, utilization is limited due to salinity caused by seawater intrusion as a result of over-exploitation, the presence of pit latrines and poorly kept septic tanks.

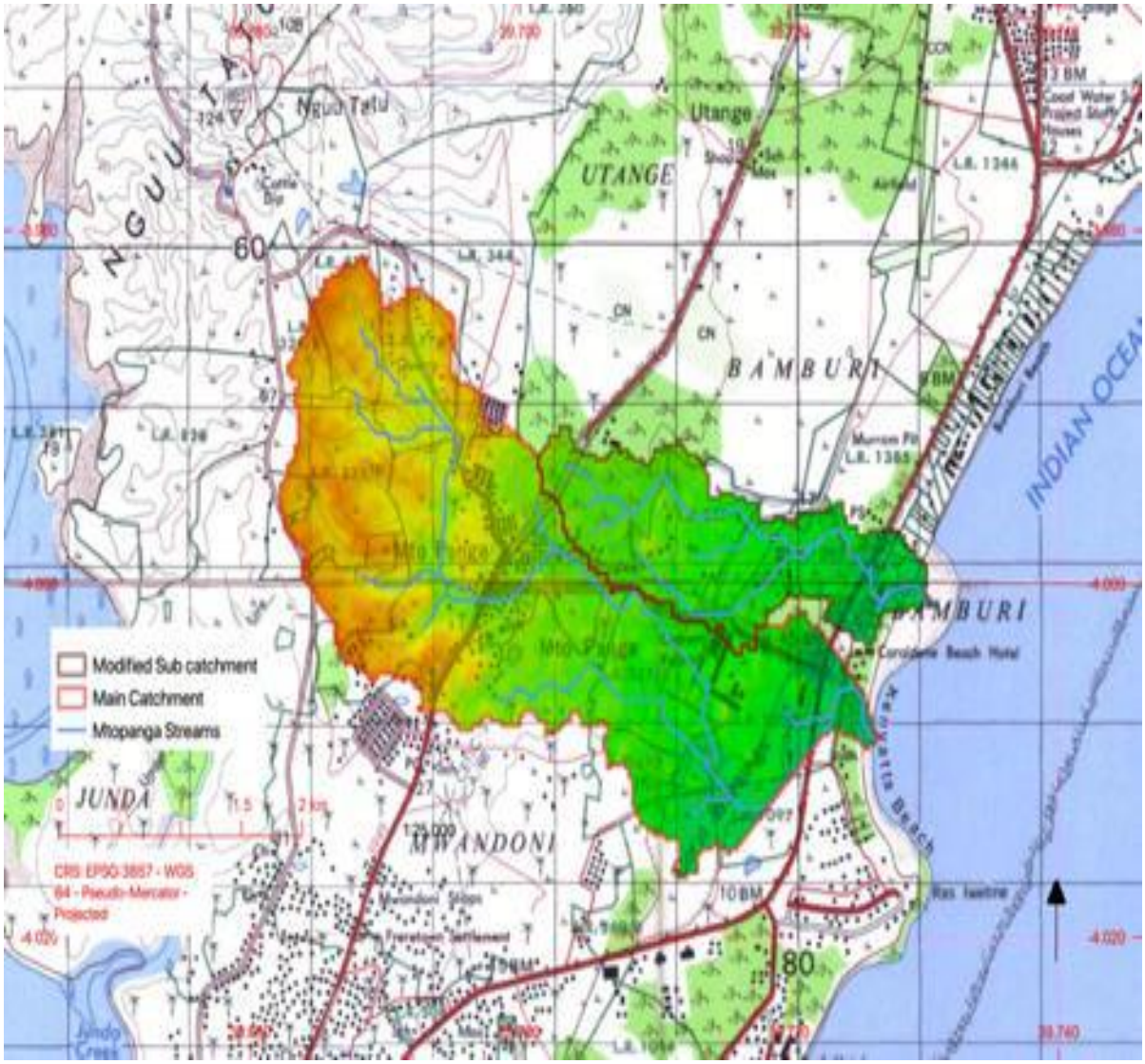

Figure 7: Mtopanga sub-catchment flow regime

In the proposed project area, water is found in the coral rocks which are characterized by well-defined primary porosity. With a mean rainfall figure close to 1100 mm, and a geology marked by sediments, the general potential for groundwater development can be termed as good. Based on the geophysical and hydrogeological survey done on this site, there are good chances of getting water in this site. The report recommends borehole or well drilled up to 40 meters at VES 1 (Appendix 7). The upper water table level within the site is shallow varying between depths of 3.44m to 8.38m. The map in figure 8 below indicates water table levels at 10 different points sampled with the project site.

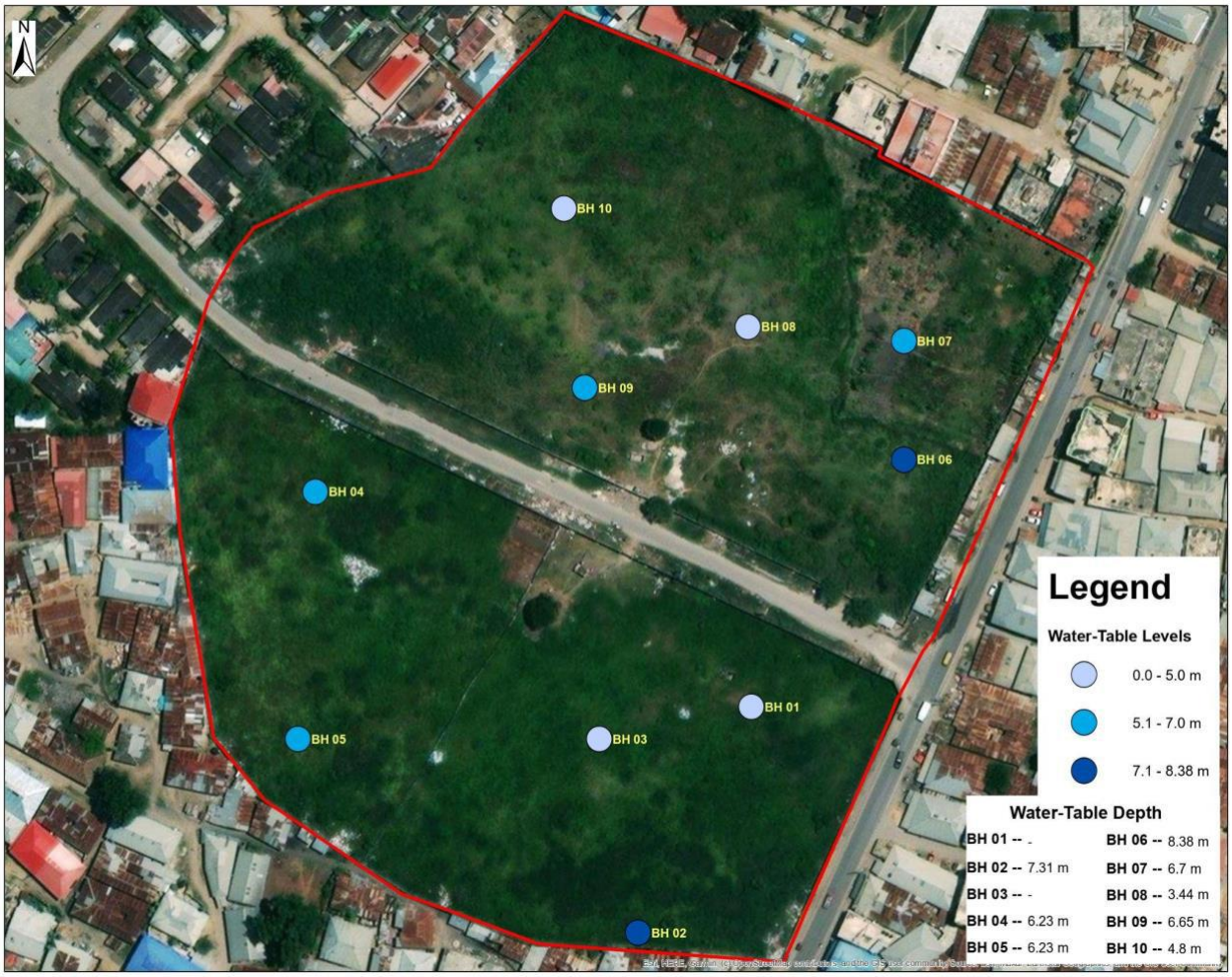

Figure 8: Water Table levels within the Project Site- Bakarani

2.4.5. Water Quality

The water quality within the larger Mombasa area has been dropping in quality due to the pollution of groundwater resources by improper disposal of liquid waste. The development will source water from a reticulated supply by MOWASCO supplemented by a borehole supply. It is recommended that the proponent undertake tests on yields and analysis of the water quality to determine capacity to meet the demand and conformity to Schedule 1 of the Water Quality Regulations, 2006.

2.4.6. Air Quality

The results from the Baseline ambient air quality monitoring showed compliance of all the gaseous and particulate parameters monitored, with EMC (Air quality) regulations 2014 at all monitoring locations during the weekday and weekend days of monitoring. A significant number of parameters had their concentrations higher during the weekdays than during the weekend as a result of high vehicular traffic during peak hours, observed around the proposed construction site. (See Appendix 8)

2.4.7. Solid waste management

Solid waste generation in Mombasa District is estimated at 700 metric tons per day. The waste is both organic and inorganic with the inorganic forms being non-biodegradable. The main waste generation sources are domestic, commercial ventures, hotels, markets, industries and institutions including health facilities. The types of waste that are generated include Plastic waste including papers and hard plastics, Organic materials including food remnants and wooden debris, rubber, paper, and metals, chemicals, glass, and biomedical waste. Waste materials are

collected from point sources or municipal dustbins in mixed form and transported to the Mwakirunge dumpsite which is the only one serving Mombasa as well as the newly created Kilindini Districts. All types of waste are transported to the site including hazardous types containing pesticides, heavy metals, oils, batteries, acids, and domestic and hospital wastes. The distance to the site (16km) and the lack of adequate facilities for waste transport at the Mombasa Municipal Council has created a waste management problem for the city. The council has only about 10, seven-ton tippers, 2 bulldozers, 2 compactors which are grounded and six tractors/trailers which are inadequate to efficiently dispose of all the waste generated by the city. As a result, much of the waste remains largely uncollected.

From the study findings on solid waste management, only (5.5%) of the respondents said that their solid waste was collected by the county government. (42.9%) burnt their solid waste and (31.0%) said that they are collected by a private waste collector. This indicates that solid waste is mostly managed privately or by a private waste collector whom they said that they have to pay for the services. (38.5%) said that they pay 50 shillings and below while (27.7%) pay more than 250 shillings as shown in the figure below.

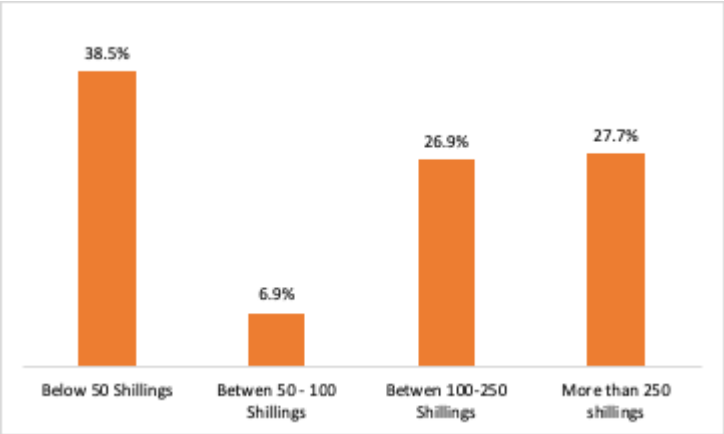

Figure 9: Cost incurred on Solid Waste Collection

2.4.7.1. Solid waste generation & handling

The solid waste generated during construction will include construction debris, sanitary waste, excavated soil and rocks. The other wastes that are likely to be generated during operation are solid waste such as paper, plastics, cans, glasses, metallic pieces, organic waste and E-waste. These wastes will be disposed by the proponent in accordance with the standards and documented procedures stipulated in the EMCA Waste Management Regulations of 2006.

2.4.8. Noise level monitoring

The noise level monitoring machine, the Noise level analyzer, was raised about 1.5 m from the ground from which the equivalent noise level (LAeq), the maximum sound pressure level (LAmax), the minimum sound pressure level (LA min), the sound pressure level at 5%, 50% & 95% (L5), (L50), (L95) respectively, during the monitoring period were recorded. The results were then correlated with the EMC (Excessive noise and Vibration) regulation 2009 limits and further subjected to a significance test (See Appendix 7).

2.5. Ecological Conditions

The Mombasa County ecosystem has both marine and terrestrial components. Both ecosystems are characterized by diverse species of flora and fauna, the most common being coconut trees and different species of fish, which have different cultural, social and financial values. However, Natural ecosystems within and around the site have been significantly altered by developments and other economic activities. The proposed site is undeveloped land with few patches of vegetation within open spaces on the project site. There are no dominant or threatened fauna

at the site. The most common fauna in the area are black crow birds which are also found within the Mombasa urban area.

Plate 4: Existing Flora within the Project Site

2.6. Socio-Economic Environment

2.6.1. Population and Demographics

The population growth of Mombasa town has been on the rise according to the 2019 population and housing census report. The total population of the county based on the 2019 Kenya Population and Housing Census was 1,208,333 and is projected to rise to 1,422,440 persons by the end of the planning period in 2027. Kisauni sub-county, in which the proposed project is sited is the most populated sub-county in the County with a population of 291,930 (24%) of the total population, and is projected to increase to 343,682 persons by the year 2027. This high population size can be attributed to a strong land tenure system and accessibility of low-cost housing within the subcounty which makes individuals seek residence in the area. Other key driving factors include factors the increase in fertility rate and improved health services. The high population creates a sustained demand for houses making the proposed project a feasible and timely investment by the proponent. Tables 3 and 4 below indicate the population distribution across different sub counties in Mombasa and the Social demographic characteristics within the Project area respectively.

Table 3: Population Distribution across different Sub-counties in Mombasa

Sub County	***Population (2019 Census)***	***Population (2027 Projection)***	***Land area (Sq. Km)***	***Population density (No. per Sq. Km)***
Kisauni	291,924	343,658	88	3,328
Likoni	250,354	294,719	40	6,187
Nyali	216,565	254,953	23	9,610
Jomvu	163,412	192,371	37	4,432
Mvita	154,166	181,489	15	10,543
Changamwe	131,882	155,250	18	7,457
Total	**1,208,333**	**1,422,440**	**220**	**5,495**

Table 4: Social demographic characteristics

		n	%
Household size	Respondent only	12	5.1%
	Between 2-5 people	130	55.6%
	Between 6-10 people	84	35.9%
	More than 10 people	8	3.4%
		234	
Length of stay	Less than 5 Years	54	30.7%
	Between 6-10 Years	44	25.0%
	Between 11-20 Years	49	27.8%
	Above 20 years	29	16.5%
		176	

During the focal group discussion with conservation group, it was established that the following are the water related problems within the Mtopanga catchment:

1) Pollution;(Solid and liquid wastes)
2) Illegal and over abstraction of water
3) Uncontrolled waste dumping;
4) Poor drainage system
5) Lack of sewerage systems;
6) Poor planning of settlement;
7) Overpopulation;
8) Obstruction of the river
9) Encroachment of riparian areas;
10) Degradation of the catchment
11) Flooding;
12) Lack of Land Ownership documents;
13) Lack of fresh water.

2.7. Infrastructure

2.7.1. Water Supply

The project area is served with piped water supplied by Mombasa Water and Sewerage Company (MOWASCO) service line. However, the water supply from this line is erratic and unreliable. The water quality within the larger Mombasa area has been dropping in quality due to the pollution of ground water resources by improper disposal of liquid waste.

2.7.2. Water Use

Household survey findings indicated that 50% of the households consumed 51–100 litres of water, 18.3% consumed 1–50 litres, and 12.7% consumed 151–200 litres while 11.7% consumed 101–150 litres respectively. In other terms most of the households averagely use five Jerricans of water daily for their domestic use.

The development will source water from reticulated supply by MOWASCO. Due to unreliability in water supply, it is expected that the project proponent will supplement water supply through use of borehole water and rainwater harvesting to ensure sufficiency of clean water during the operation stage of this project. It is a recommendation that the proponent undertakes tests on yields and analysis of the water quality to determine capacity to meet the demand and conformity to Schedule 1 of the Water Quality Regulations, 2006. The proponent has undertaken hydrogeological survey to establish the viability of ground water for the project. Refer to appendix 6.

2.7.3. Sewer System

The system in Mombasa City is connected to two treatment plants these are: Kipevu treatment plant located on the West Mainland area and Kizingo Treatment Plant located in Kizingo area within Mombasa Town. Whereas the Kizingo plant is currently inoperable, the Kipevu one operates at 30% it capacity leading to the disposal of partially treated sewage into the sea at Makupa, Ziwani and Port Tudor. The rest of the County depends on privately constructed soak pits and pit latrines which have a potential to pollute water sources. There is little evidence of adherence to the Water Act 2002 that stipulates the requirements for boreholes and pit latrines to be located at far distances to protect ground water sources from contamination.

2.7.4. Wastewater Management

All wastewater from the development's housing facilities will be channeled to the biological waste water treatment plant to be put up within the development. The developer proposed to setup two waste water plants of compact/module type, one for each phase. The proposed system is to treat wastewater of a flow of 205.2m3 per day. Figure 10 below shows the schematic design of the proposed biological waste water treatment plant. Each treatment plant comprises of five combatments, namely: the *Equalisation chamber* which buffers the peak flows and regulates the feed rate of effluent fed into the Bioreactors; the *Fine Screening chamber* that filters solutes entering the treatment chambers, *MBBR Bioreactors chamber* where treatment of the waste water occurs. This chamber has bacteria and microorganisms rapidly feed on the waste in the water. Products from the *MBBR Bioreactors chamber* are directed into the *Clarifier chamber* of the plant where sludge is separated from clean water. The sludge is accumulated at the bottom of the clarifier where it can be collected or directed to the sewer. The final stage of the treatment process is at the Contact Storage chamber where the treated water is to disinfected with chlorine.

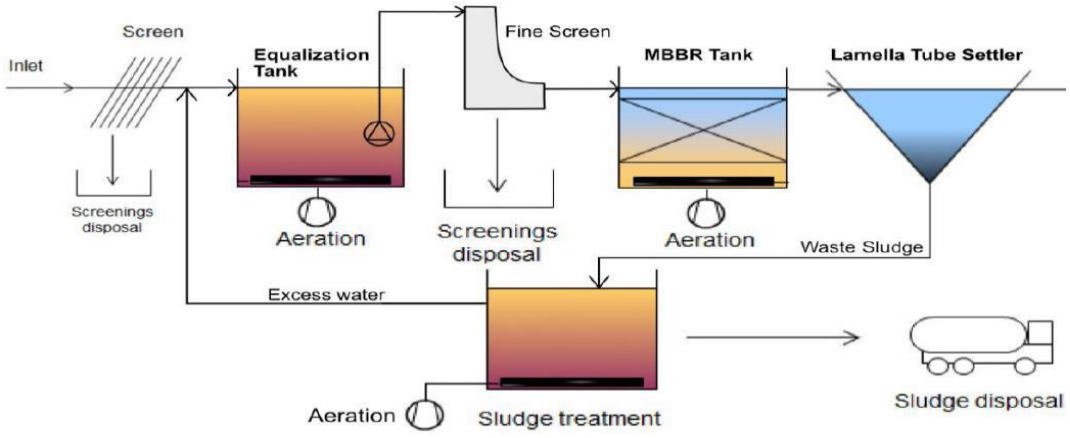

Figure 10: Schematic design of the proposed biological wastewater treatment plant

The effluent discharged from the treatment process will be clear and odourless, and ready for discharge to the environment without threat to health or the environment or reused for purposes such as irrigation. The stormwater from the establishment will be channeled by gravity to the drainage channels serving the area.

2.7.5. Transport Network Infrastructure

There is an estimated 257.17 Km of bitumen surface roads, 127 Km of gravel surface roads and 91.29 Km of earth surface roads in the county. Main classified roads include Mombasa - Nairobi highway, Mombasa - Malindi road and Likoni Lungalunga Road connecting Kenya and Tanzania. A SWOT analysis on Mombasa transport highlighted population growth and mortorisation as a significant threat to the transport system in Mombasa.

The proposed sites are linked by the Mtopanga Estate access road which connects to the Old Mombasa-Malindi road. From a traffic study undertaken. Traffic data indicates that the Old Mombasa- Malindi road operates at approximately 88% & 78% capacity during the morning and afternoon peak hour respectively near the project site while Mtopanga Estate access road is operating at approximately 21% & 22% in the AM & PM respectively as show in the table 5 below. The access road is therefore sufficient for the anticipated traffic during construction and operational phase for vehicular traffic. There is a limitation to Non-motorised transportation (NMT) infrastructure as well as underdeveloped pedestrian traffic facilities.

Table 5: Traffic Situation Analysis

Vehicle type	**Old Mombasa-Malindi road**				**Mtopanga Estate access road**			
	Average peak counts /hour							
	Morning Peak (AM)		**Evening Peak(PM)**		**Morning Peak (AM)**		**Evening Peak(PM**	
	RHS	**LHS**	**RHS**	**LHS**	**RHS**	**LHS**	**RHS**	**LHS**
Cars	119	265	258	129	37	66	44	34
Matatus	82	155	123	62	1	2	1	2
Tuk Tuks	83	149	131	65	27	48	34	40
Motorcycles	175	251	268	134	66	98	86	91
Trucks/Buses	11	19	14	7	7	10	8	8

(Source: Traffic survey 2024)

Plate 5: Mtopanga Estate access road. Notice the dumping of waste on the road reserve

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2.7.6. Electricity Power and Energy

Kenya Power will serve the facility for provision of electricity services. Power distributions will be done in a sustainable manner by employing the use of energy saving gadgets such as bulbs within the facility. Solar panels will be installed within the housing development for street lighting & common areas.

2.7.7. Lighting Systems

All functions within the facility will be fitted using the latest energy saving lighting equipment. Lighting will be dimmable and be under daylight and occupancy controls. To save on energy, provision is made for lighting controls with; daylight linked dimming, occupancy controls in spaces that are not continuously occupied. Solar panels will also be installed to provide renewable energy for lighting where necessary.

3. ENVIRONMENTAL POLICY, LEGAL & INSTITUTIONAL FRAMEWORK

3.1. National Environmental Policies

	National Environmental Policies	Relevance to the project/license or permit required/ or activity requiring regulation
1.	National Environmental Action Plan (NEAP): The purpose of the National Environmental Action Plan (NEAP) is to promote and facilitate the coordination of strategies and measures to protect and manage the environment into plans and programmes for the social and economic development of Kenya. The Environmental Management and Coordination Act, 1999, established the NEAP to address the protection and management of the environment at district, provincial and national levels.	The proponent should comply with the NEAP policies and legislative with regards to preventing, controlling or mitigating specific as well as general adverse impacts on the environment. The project activities will interact with the various elements and components of the physical, social and economic environments in ways that could lead to negative impacts. Stakeholders in the project will therefore ensure that projects covered under consideration should be implemented in ways that ensure environmental integrity. Issues of environmental integrity will be addressed through project level Environmental Impact Assessments (EIAs).
2.	Kenya's Vision 2030: The Kenya Vision 2030 is the national long-term development policy that aims to transform Kenya into a newly residential, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment.	Amongst others, Vision 2030 is to facilitate production of housing units and to improve the lives of slum dwellers. The Kisauni Residential Development project is a timely project in line with this vision. Each activity or project carried out in the republic must comply with the state vision of the national environment, as well as respect the right of everyone to a clean and healthy environment. The project provides for various types of development activities that use sensitive components of the physical and natural environment, and stakeholders involved in the implementation of the program must ensure that the principle of sustainable development is respected at all stages of projects related to the programs.
3.	National Environment Policy, 2012 Revised Draft #4: The major objective of the policy is to provide a framework for an integrated approach to planning and sustainable management of Kenya's environment and its natural resources. The policy further ensures that the environment is integrated in all government policies in order to facilitate and realize sustainable development at all levels. This would help promote green economy, enhance social inclusion, improve human welfare and create opportunities for employment and maintenance of a healthy ecosystem.	ESIA study has developed an environment and social management and monitoring plan to mitigate the impacts that may result during the construction and operation phases of the project. This tool is aimed at promoting coordination of environmental management of the project such that sensitive ecosystems are not destabilized by project activities The developer should ensure that the provisions of this policy are followed to ensure the protection of the environment.

	National Environmental Policies	Relevance to the project/license or permit required/ or activity requiring regulation
4.	Environmental and Development Policy (Session Paper No. 6 1999): The goal of this Policy is a better quality of life for present and future generations through sustainable management and use of the environment and natural resources	The main objective of this Policy is a better quality of life for present and future generations through sustainable management and use of the environment and natural resources. The Kisauni Residential Development project once complete will offer housing units to the people of Kisauni & beyond.

3.2. Environmental Institutional Framework

	Environmental Institutional Framework	Relevance to the project/license or permit required/ or activity requiring regulation
1.	National Environment Council (NEC): Part III section 4 of the principal Act outlines the establishment of the National Environment Council (NEC). NEC is responsible for policy formulation and directions for purposes of EMCA; sets national goals and objectives, determines policies and priorities for the protection of the environment, promotes co-operation among public departments, county governments, private sector, non-governmental organizations and such other organizations engaged in environmental protection programmes. Key Functions of NEC: ● Policy formulation and direction for the purposes of this act ● Set national goals and objectives and determine policies and priorities for the protection of the environment; ● Promote cooperation among public departments, local authorities, private sector, non-governmental organizations and such other organizations engaged in environmental protection programmes; Perform such other functions as are assigned under the Act	The council sets national goals and objectives and determine policies and priorities for the protection of the environment that are to be followed by the developer of the proposed Kisauni Residential Development Project.
2.	National Environment Management Authority (NEMA): The objective and purpose for which NEMA is established is to exercise general supervision and co-ordinate over all matters relating to the environment and to be the principal instrument of the government in the implementation of all policies relating to the environment.	The Project proponent is required to contract the services of a license EIA expert, submit an ESIA report to NEMA and acquire an EIA license before commencing any construction activities.

	Environmental Institutional Framework	**Relevance to the project/license or permit required/ or activity requiring regulation**
	NEMA is responsible for general supervision and, coordination of all matters relating to the environment and is the principal instrument of government in the implementation of all policies relating to the environment. The authority is also responsible for monitoring compliance with all the NEMA regulations	
3.	County Environment Committee: The County Environment Committee shall- (a) Be responsible for the proper management of the environment within the county for which it is appointed; (b) Develop a county strategic environmental action plan every five years for consideration and adoption by the County Assembly. These committees contribute to the decentralization of activities undertaken by NEMA and thus enable local communities to have access to environmental management information. The committees also conduct quick site visits and review environment-related reports of the projects and on occasion could attend site meetings.	The project is in Mombasa County and will be subject to site visits by the County Environmental Committees. The committees will review environment-related reports of the project and on occasion could attend site meetings.
4.	National Environment Complaints Committee, NECC (Public Complaints Committee): The committee is an environmental ombudsman that was established under sections 31 to 36 of the Environmental Management and Coordination Act no. 8 of 1999 with a mandate to investigate allegations or complaints regarding the condition of the environment in Kenya. It is an important institution in the assessment of the condition of the environment in Kenya	If any disputes will arise in regard to this project, the NECC will also play an important role in the facilitation of alternative dispute resolution mechanisms relating to environmental matters.
5.	National Environment Action Plan Committee: The Environmental Action plan Committee discusses the challenges of climate change for Kenya and underscores the sustainability of Kenya's economic and social development which depend ultimately on proper and responsible management of the natural resource base and the environment in general. The plan also describes the physical environment and follows the thematic areas of nine task forces.	The Plan is a requirement by the Climate Change Act, 2016, which seeks to further Kenya's development goals by providing mechanisms and measures to achieve low carbon.

	Environmental Institutional Framework	**Relevance to the project/license or permit required/ or activity requiring regulation**
6.	Standards and Enforcement Review Committee: NEMA through EMCA has established standards for the various environmental parameters that require management, and these include the water quality standards, noise and vibration control standards, and the waste management standards, amongst other. SERC, through the Compliance and Enforcement Department of NEMA monitors the compliance level of the project to ensure environmental control standards are implemented. The committee also follows on complaints reported by the public. This is a technical Committee responsible for environmental standards formulation, methods of analysis, inspection, monitoring and technical advice on necessary mitigation measures. The members of the Standards and Enforcement Review Committee are set out in the third schedule of the principal Environmental Management and Co-ordination Act.	The committee gives advice on how to establish criteria and procedures for the measurement of water quality and recommends the minimum water quality standards, analyzes conditions for discharge of effluents into the environment, and also carry out investigations of actual or suspected water pollution
7.	National Environmental Tribunal: The tribunal is formed under section 125 of the EMCA, Cap 387 and handles all cases related to environmental offences in the Republic of Kenya. The tribunal's principal function is to receive, hear and determine appeals arising from decisions of the National Environment Management Authority (NEMA) on issuance, denial or revocation of environmental impact assessment (EIA) licenses, among other decisions.	If disputes with respect to the proposed housing project arise, the NET will function very much like a court of law.

3.3. National Environment Legislative Framework

	National Environment Legislative Framework	Relevance to the project/license or permit required/ or activity requiring regulation
1.	The Constitution of Kenya 2010: Article 42 of the Constitution states that every person has the right to a clean and healthy environment, which includes the right: to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and To have obligations relating to the environment fulfilled under Article 70. Article 69(2) states that every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.	The proponent has a right to carry out the project within legal limits. The proponent must ensure that the project is carried out in an ecologically, economically and socially sustainable manner. The proponent is entitled to a fair administrative decision-making process from NEMA and other State organs. The project proponent will be required to comply fully with the above stated articles of the Constitution.
2.	County Government Act 2012: This Act vests responsibility upon the County Governments in planning of development projects within their areas of jurisdiction on projects of importance to the local County Government or those of national importance. Section 102 of the Act provides the principles of planning and development facilitation which include integration of national values in county planning, protect the right to self-fulfillment within the county communities and with responsibility to future generations, protection of rights of minorities and marginalized groups and communities, promotion of equity resource allocation, among others.	The project proponent should initiate the process of County Government engagement in the initial project planning through application of essential development approvals from Mombasa County Government. The proponent will comply fully with the Act.
3.	Environment Management and Coordination Act (EMCA) of 1999 Revised in 2015: The Environmental Management and Co-ordination (Amendment) Act, 2015 is an Act of Parliament to amend the Environmental Management and Co-ordination Act, 1999, the Act received Presidential assent on 27th May 2015 and commenced on 17th June 2015. The Act provides for the establishment of appropriate legal and institutional framework for the management and protection of the environment.	EMCA provide a legal and institutional framework for the management of environment-related matters. Environmental quality conservation aspects of the project in consideration will be realized through the implementation of the Environmental Management & Social Monitoring Plan aimed at mitigating the potentially negative impacts and enhancing the potentially positive impacts predicted through project level EIAs.

3.4. International Environmental Management Agreements/ Conventions and Protocols

	International Environmental Management Agreements/ Conventions and Protocols	**Relevance to the project/license or permit required/ or activity requiring regulation**
1.	The United Nations Declaration on the Rights of Indigenous Communities: The Declaration is the most comprehensive international instrument on the rights of Indigenous peoples. It establishes a universal framework of minimum standards for the survival, dignity and well-being of the Indigenous peoples of the world and it elaborates on existing human rights standards and fundamental freedoms as they apply to Indigenous peoples.	The provisions of The United Nations Declaration on the Rights of Indigenous Communities should be put into consideration by the developer, in that the developer should engage the indigenous communities throughout the project cycle.
2.	The Rio Declaration- Agenda 21: Principle 4 of the Rio Declaration provides that in order to achieve sustainable development environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it. Principle 25 accentuates this by stating that peace, development and environmental protection are interdependent and indivisible.	The provisions of Rio Declaration should be put into consideration by the developer, in that protect the environment while still sustainably developing.
3.	World Commission on Environment and Development of 1987: The mission of the Brundtland Commission is to unite countries to pursue sustainable development together. The Brundtland Commission insists upon the environment being something beyond physicality, going beyond that traditional school of thought to include social and political atmospheres and circumstances. It also insists that development is not just about how poor countries can ameliorate their situation, but what the entire world, including developed countries, can do to ameliorate our common situation.	The provisions of this convention should be taken into consideration by the developer.
4.	The Ramsar Convention on Convention on Wetlands of International Importance especially as Waterfowl Habitat: The Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat is an international treaty for the conservation and	The developer should ensure the proposed project doesn't have any impact on wetlands. Wastes should properly be disposed and not directed into water bodies.

	International Environmental Management Agreements/ Conventions and Protocols	**Relevance to the project/license or permit required/ or activity requiring regulation**
	sustainable use of wetlands. It is also known as the Convention on Wetlands. It is named after the city of Ramsar in Iran, where the Convention was signed in 1971. Every three years, representatives of the Contracting Parties meet as the Conference of the Contracting Parties (COP), the policy-making organ of the Convention which adopts decisions (Resolutions and Recommendations) to administer the work of the Convention and improve the way in which the Parties are able to implement its objectives.	
5.	Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (Basel Convention): Is an international treaty that was designed to reduce the movements of hazardous waste between nations, and specifically to prevent the transfer of hazardous waste from developed to less developed countries (LDCs). The Convention is also intended to minimize the amount and toxicity of wastes generated, to ensure their environmentally sound management as closely as possible to the source of generation, and to assist LDCs in environmentally sound management of the hazardous and other wastes they generate.	The developer should minimize the amount and toxicity of wastes generated, to ensure their environmentally sound management as close as possible to the source of generation
6.	United Nations Framework Convention on Climate Change UNFCCC (1993): The UNFCCC objective is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The framework sets non-binding limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. Instead, the framework outlines how specific international treaties (called "protocols" or "Agreements") may be negotiated to specify further action towards the objective of the UNFCCC.	The Kisauni Residential Development project will endeavour to be in line with this convention and ensure that atmospheric pollution through greenhouse gases are minimized as is practically possible.

	International Environmental Management Agreements/ Conventions and Protocols	**Relevance to the project/license or permit required/ or activity requiring regulation**
7.	Rotterdam (PIC) Convention on Prior Informed Consent: The Rotterdam Convention (formally, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade) is a multilateral treaty to promote shared responsibilities in relation to importation of hazardous chemicals. The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans.	The Convention creates legally binding obligations for the implementation of the Prior Informed Consent (PIC) procedure. It built on the voluntary PIC procedure, initiated by UNEP and FAO in 1989 and ceased on 24 February 2006. The Convention covers pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by Parties and which have been notified by Parties for inclusion in the PIC procedure.
8.	Stockholm Convention on Persistent Organic Pollutants (POPs) (2002): The Stockholm Convention on Persistent Organic Pollutants is a multilateral treaty to protect human health and the environment from chemicals, known as POPs. POPs have harmful impacts on human health or on the environment. They remain intact in the environment for long periods, become widely distributed geographically and accumulate in the fatty tissue of humans and wildlife.	The developer should ensure that all POPs are properly disposed in order to protect the environment.
9.	UNCCD: Convention on Desertification, of January 1995: The United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa (UNCCD) is a Convention to combat desertification and mitigate the effects of drought through national action programs that incorporate long-term strategies supported by international cooperation and partnership arrangements.	Soil conservation measures should be put in place throughout project implementation period.
10.	World Heritage Convention: Convention concerning the protection of the world cultural and natural heritage: For the purpose of this Convention, international protection of the world cultural and natural heritage shall be understood to mean the establishment of a system of international co-operation and assistance designed to support States Parties to the Convention in their efforts to conserve and identify that heritage.	The Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention) is a successful global instrument for the protection of cultural and natural heritage.

	International Environmental Management Agreements/ Conventions and Protocols	**Relevance to the project/license or permit required/ or activity requiring regulation**
11.	Montreal Protocol: Protocol for the Protection of the Ozone Layer January 1990: The Montreal Protocol is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.	The developer is required to use only materials and substances that are safe and won't lead to the depletion of the Ozone layer.
12.	Sofia Protocol to LRTAP concerning the Control of Emissions of Nitrogen Oxides or their Trans-boundary Fluxes (NOx Protocol): Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution Concerning the Control of Emissions of Nitrogen Oxides or Their Transboundary Fluxes, opened for signature on 31 October 1988 and entered into force on 14 February 1991, was to provide for the control or reduction of nitrogen oxides and their transboundary fluxes.	The proponent is requested to introduce pollution control measures based on best available technologies that are economically feasible.

3.5. Institutional Structure of the Housing Sector in Kenya

	Institutional Structure of the Housing Sector in Kenya	**Relevance to the project/license or permit required/ or activity requiring regulation**
1.	National Housing Corporation: The National Housing Corporation is established and constituted by the Housing Act Chapter 117 (3) The Corporation consists of (a) a chairperson appointed by the President; (b) the Principal Secretary responsible for housing in the Ministry; (c) a person appointed by the Cabinet Secretary for the time being responsible for finance; and (d) six persons appointed by the Cabinet Secretary for the time being responsible for housing, being persons who in his or her opinion possess knowledge of housing development or housing finance. The corporation is charged with:	NHC endeavours to make Kenya a "decently housed nation". To achieve this vision, the corporation plays a leading role in providing and related services to Kenyans. The Kisauni Residential Development project is in alignment with this vision.

	Institutional Structure of the Housing Sector in Kenya	**Relevance to the project/license or permit required/ or activity requiring regulation**
	(a) undertake and encourage research and experiment in housing related matters, and undertake and encourage the collection and dissemination of information concerning housing and related matters; (b) take part in housing exhibitions and other forms of publicity; (c) undertake and encourage the provisions of training in furtherance of the purposes of this Act and provide training for members of its staff; (d) perform such other duties connected with housing as the Minister may direct; (e) to operate a housing finance institution with powers to borrow funds from the Government, overseas agencies, pension and trust funds and any other institution or persons, as well as to collect deposits and savings from the public to be applied to the financing of residential housing development and related matters; and to establish, promote or aid in establishing or promoting, constitute, form or organise companies syndicates or partnerships alone or in conjunction with any other person or institutions for the carrying on of any such functions as the Corporation is empowered to carry on under this Act.	
2.	(f) National Housing Development Fund, 2020: (g) Housing Act Chapter 117 (7) Establishes the Housing Fund which is under the control of the National Housing Corporation, consisting of such securities and money and applicable to such purposes as are provided for by this Act. (h) The Finance Act 2018 was enacted by adding the following to Section 86, thus technically amending Employment Act, 2007 by inserting this text after Section 31. (i) 31A. (1) An employer shall pay to the National Housing Development Fund in respect of each employee—	remains one of the key growth pillars for promoting long-term economic development. To achieve the goals outlined in this pillar, the Government of Kenya established the National Housing Development Fund (NHDF). Public-private partnership framework will enable fast-tracking of the approval processes of housing projects and accommodate new approaches. The Kisauni Residential Development Project will help the Kenyan Government to achieve this goal.

	Institutional Structure of the Housing Sector in Kenya	Relevance to the project/license or permit required/ or activity requiring regulation
	(j) (a) the employer's contribution at one point five per centum (1.5%) of the employee's monthly basic salary; and (k) (b) the employee's contribution at one point five per centum (1.5%) of the monthly basic employee's salary: (l) Provided that the sum of the employer and employee contributions shall not exceed five thousand shillings (Kshs.5,000) a month.	

3.6. Ministerial and County Institutional Integration

	Ministerial and County Institutional Integration	Relevance to the project/license or permit required/ or activity requiring regulation
1.	Environmental Management & Coordination (Waste Management) Regulations 2006: Provides standards for handling, transportation & disposal of various types of waste including hazardous waste. Requirements to ensure waste minimization or cleaner production, waste segregation, recycling or composting Provides for licensing of vehicle transporting waste Provides for licensing of waste disposal facilities	Disposal of generated waste from operations under the project. Generation of hazardous wastes such as used oil & oily parts from servicing of equipment & vehicles. Ensure there exists proper contractual agreement with NEMA licensed solid waste handlers and that solid wastes are collected promptly and disposed of responsibly.
2.	Air Quality Regulations, (Legal Notice No. 34 of 2014): These regulations are aimed at controlling, preventing and abating air pollution to ensure clean and healthy ambient air.	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.
3.	Legal Notice No. 120, Environmental Management & Co-ordination (Water Quality) Regulations 2006: Provides for the protection of ground & surface water resources Provides for the parameters in the quality of wastewater discharged from any facility/activity into the environment or sewer.	Any discharges to the surface water courses during operation phases are to be monitored for conformance with the standards. The project proponent will fully comply with the Regulations. The contractor/proponent will handle hazardous substances in a manner that is not likely to cause water pollution. The proponent should ensure that effluent meets the standards set out under Schedule III of Legal Notice No. 120 of 2006.
4.	The Environmental Management and Coordination (Controlled Substances) Regulations, 2007:	The proponent will comply fully with the Regulations by not using Ozone Depleting Substances

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	The regulations regulate the importation and use of Ozone Depleting Substances. Regulation No. 3 gives a classification of Controlled Substances.	
5.	The Environmental Management and Coordination (Wetlands, Riverbanks, Lake Shore and Sea Shore management) Regulations, 2009: Section 14 of the Regulations states: Duty of landowners, users and occupiers. (1) Every owner, occupier or user of land which is adjacent or contiguous to a wetland shall, with advice from the Authority, have a duty to prevent the degradation or destruction of the wetland, and shall maintain the ecological and other functions of the wetland.	The project proponent will be required to comply fully with the Regulations. It will be the duty of the developer to ensure no waste from this development ends up in the stormwater drains.
6.	The Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 Legal Notice No. 160: The regulations provide for a) detailed processes and rules for the conservation of biological diversity in Kenya; b) mechanisms to protect and prevent exploitation of endangered and threatened plant and animal species; c) access to and the fair and equitable sharing of benefits arising from the utilization of genetic resources; d) the consultation of local communities in the process of accessing genetic resources for research, commercial and other purposes; e) Ensure recognition of specific knowledge held by and role of local communities in conservation of biological resources; f) Regulate the process and terms by which genetic resources can be taken out of the republic of Kenya and, sustainable use of biodiversity and genetic resources.	The developer should adhere to these regulations in order to conserve the biological diversity in the area
7.	Environmental Management & Co-ordination (Noise & Excessive Vibration Pollution Control) Regulations 2009:	Sound level limits of 60dB(day) and 35dB (night) to be observed during operations License to emit noise/vibrations more than permissible levels to be acquired if necessary. The proponent will be required to comply fully with the Regulations.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	Prohibits the generation of unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others & the environment. Provides for the maximum noise levels permissible in various environmental setups such as residential areas, places of worship, commercial areas & mixed residential Provides that a sound source creates or is likely to emit noise or excessive vibrations or otherwise fail to comply with the provision of these regulations, a license is required.	
8.	Legal Notice No. 31, Environmental Management and Coordination, (Noise and Excessive Vibration Pollution) Regulations 2010: These Regulations require that no person or activity 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.	The contractor shall be required to implement these measures and ensure that all machinery is in good working condition to reduce noise. Also, construction activities shall be restricted between 0800Hrs-1700Hrs to ensure that the neighbours are not disturbed.
9.	Environmental (Impact Assessment & Audit) Regulations, 2003 Amended 2019: Provides for the procedure for carrying out the ESIA Provides for the contents of an ESIA study report	The ESIA is to be carried out in accordance with the regulations
10.	EMCA (Fossil Fuel Emission Control) Regulation, 2006: NEMA is mandated under this regulation to approve any substance to be used as a fuel catalyst if the substance improves fuel economy, enhances combustion and reduces harmful emissions that adversely affect human, animal and plant health and degrade the environment. Furthermore, NEMA has to issue a catalyst license of an approved fuel catalyst and may impose such conditions as it may deem appropriate.	Only approved substances are to be used as a fuel catalyst if the substance improves fuel economy, enhances combustion and reduces harmful emissions that adversely affect human, animal and plant health and degrade the environment
11.	Use of Poisonous Substances Act Cap 247: An Act of Parliament to provide for the protection of persons against risks of poisoning by certain substances, and for matters incidental thereto and connected therewith	Section 3 of the Act casts a duty of all employers to protect their employees against the risk of poisoning by poisonous substances.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
12.	The Water Act (Act No.8 of 2002) revised in 2016: Provides that a permit shall be required for any use of water from a resource, especially where there is abstraction and use of water with the employment of works. The legislation provides for the management of water resources at the national and county levels. Article 40(4) provides an application for a permit to which shall be subject to public consultation and, where applicable EIA in accordance with the requirements of the EMCA. 108(1) sewage & effluent management to avoid environmental pollution.	Use of water abstracted from the natural spring requires an abstraction permit. A permit will be required from WRA for any water borehole construction works and an abstraction license The proponent will comply fully with the Act.
13.	Water Resources Management Rules 2007: Provides for application by all those intending to abstract groundwater Provides that where any borehole or well is intended to be equipped with a motorized pump the application shall be accompanied by a hydrogeological assessment report.	Depending on the proposed source of water for construction activities, permits may be required
14.	The Forests Act (Chapter 375): The Forest Act, Cap 385 of 1962 (revised 1982, 1992 and 2005) addresses the preservation, protection, management, enforcement and utilization of forests and forest resources on Government land. The Forest Act applies to gazetted forest areas (Forest Reserves) and specifically covers: Gazettement, alteration of boundaries and de-gazettement of Forest Reserves (Section 4); Declaration of Nature Reserves within Forest Reserves and regulation of activities within Nature Reserves (Section 5); Issuance of licenses for activities within Forest Reserves (Section 7); Prohibition of activities in Forest Reserves (removal of forest produce, grazing, cultivation, hunting, etc.) and on unalienated Government land (removal of trees, collection of honey, lighting of fires) except under license from the Director of Forest Services (Section 8);	The project area is not located in a forest zone. However, the developer will need a KFS permit to cut down existing trees. The developer should plant more trees on the site after completion of the project.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	Power of the Minister to make rules concerning sale and disposal of forest products, use and occupation of land, licensing and entry into forests (Section 15). This prerogative has been taken with the Forests (General) Rules, which sets forth rules for sale of forest produce and specifies royalty rates for these products.	
15.	Physical and Land Use Planning Act No.13 of 2019: An Act of Parliament to provide for the preparation and implementation of physical development plans and for connected purposes. Provides for zoning areas	The proposed project requires approval by the county physical planning department. Provisions of the Act regarding development control shall be strictly adhered to. All developers within the project area must strictly adhere to requirements of the Act regarding plot coverage and reservation of land for public utilities
16.	Public Health Act (Cap. 242): The act makes it the duty of every local authority (in the capacity of "health" authority) to take all lawful, necessary and reasonably practicable measures to safeguard and promote public health (s.13). Part IX of the act deals with sanitation and housing and is of most significance for the control of polluting discharges. S.116 imposes a duty on every local authority to maintain its district in a clean and sanitary condition, to prevent nuisances and to prosecute those responsible for nuisances. Nuisances include drains and sewers for the discharge of pollutants into watercourses and lakes. The Public Health (Drainage and Latrine) Rules made under s.126 of the Act, make more specific provisions for drainage. The Rules require the drainage of new buildings; ● Prohibit the drainage of surface water into foul water sewers; ● Prohibit the discharge into sewers of matter which may interface with the free flow of the sewage or injure the sewer; ● Empower the local authority to prohibit the discharge of injurious matter into sewers; Impose a requirement for permits to be obtained from the local authority before the making of sewer connections or the construction of sewage treatment works.	Health issues will be integrated into the project to ensure environmental health is appropriately addressed. All stakeholders must undertake to comply with the provisions of the regulations by ensuring that the necessary plans to achieve the requirements of the regulations are put in place. Measures to mitigate all forms of nuisance in compliance with Part IX Sections 115 and 118 of the Act will be put in place throughout the phases of projects under the programmes Contractors will also manage solid waste arising from programme-related activities in compliance with provisions of this Act.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
17.	Penal Code Act (Cap. 63): Chapter XVII on "Nuisances and offences against health and convenience" contained in the penal code strictly prohibits the release of foul air into the environment which affects the health of the persons. It states "Any person who voluntarily vitiates the atmosphere in any place so as to make it noxious to the health of persons in general dwelling or carrying on business in the neighbourhood or passing along a public way is guilty of a misdemeanour"	Waste disposal and other project-related activities shall be carried out in such a manner as to conform to the provisions of the code. It is the responsibility of the contracted licensed waste handler to ensure that all kinds of waste are disposed of appropriately as per the legal provisions. The proponent will comply fully with the Act.
18.	The Workmen's Injury and Benefits Act, 2007: This Act provides for compensation to employees for work-related injuries and diseases contracted in the course of their employment and for connected purposes. Key sections of the Act include the obligations of employers; right to compensation; reporting of accidents; compensation; occupational diseases; medical aid; appeals; and miscellaneous provisions. Schedules provided in the Act outline the degree of disablement; occupational diseases; and dependant's compensation. In case of any accidents or incidents during the project cycle, this Act will guide the course of action to be taken.	The proponent will comply fully with the Act.
19.	The Employment Act, 2007: This Act declares and defines the fundamental rights of employees; minimum terms and conditions of employment; provides basic conditions of employment of employees; and regulates the employment of children, among other rights. Key sections of the Act elaborate on the employment relationship; protection of wages; rights and duties in employment; termination and dismissal and protection of children, among others.	The contractor is to be strictly advised not to engage any underage persons (under 18 years of age) to perform any form of work at the site during construction. The proponent shall also ensure that the contractor is conversant and adheres to all the provisions of the Employment Act
20.	The Traffic Act, Cap 203: This Act consolidates the law relating to traffic on roads. Key sections include registration and licensing of vehicles; driving licenses; driving and other offences relating to the use of vehicles on roads; regulation of traffic;	Vehicles will be used to transport humans and equipment during the entire project life, and their registration and licensing will be required to follow the above Act.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	accidents; offences by drivers of vehicles other than motor vehicles and other road users; and miscellaneous provisions as to roads, among others.	
21.	The Standards Act Cap 496: This Act promotes the standardization of the specification of commodities, and provides for the standardization of commodities and codes of practice to ensure public health and safety.	This means the Proponent has to ensure all materials and equipment in use during construction as well as operation of the facility adhere to the highest standards and do not pose any human health and safety risk. The proponent will comply fully with the Act.
22.	Occupiers Liability Act Cap 34: An act of parliament to amend the law as to the liability of occupiers and others for injury or damage resulting to persons or goods lawfully on land or property from dangers due to the state of the property or to things done or omitted to be done there.	Ensure the safety of workers during construction and possible decommissioning phases and occupants upon occupation of the housing units.
23.	Occupational Safety and Health Act 2007 (CAP 15): This Act promotes and guarantees the protection and wellbeing of workers in the workplace. ● Provides that every occupier shall ensure the safety, health & welfare at work of all persons working in this workplace. ● Provides for registration of premises before use as a workplace ● Provides that workplace shall be of sufficient size for work to be carried out with ease & an adequate amount of air for each employee, the minimum permissible being 10m3 per person. ● Provides that an occupier shall ensure that effective & suitable provision is made for securing & maintaining by circulation of fresh air in each workroom, the adequate ventilation of the room. ● Provides that an occupier ensures effective provision is made for securing & maintaining sufficient & suitable lighting, whether natural or artificial, in every part of this workplace in which persons are working or passing. ● Provides that sufficient & suitable sanitary conveniences for the persons employed in the workplace shall be provided, maintained & kept clean, and effective provision shall be made for lighting the	Work at the proposed site may involve hazards such as accidental falls, working at heights, exposure to energized circuits and heavy equipment etc. Other potential sources of occupational injuries include entry into confined spaces, including manholes and dust generation associated with construction activities among others. The contractor will continuously improve the safety and health standards at the construction site making safety concerns everyone's responsibility. Emergency response plan, warning signs, machinery safety and construction safety provisions of the Act which are aimed at managing occupational accidents, incidents and injuries at the workplace will be put in place. All requisite training, approval and permits including Workplace Registration Certificate shall be procured by the proponent/contractor

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	convenience; 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 a member of the same family dwelling there) such conveniences shall afford proper separate accommodation for persons of each sex. Provides that all plant, machinery & equipment whether fixed or mobile for use either at a workplace or as a workplace, shall only be used for work for which they are designed for & be operated by a competent person.	
24.	Factories & Other Places of Work (Noise Prevention & Control Rules,2005: Rules provide for the maximum noise exposure levels for workers in places of work & for the provision of protective equipment for those exposed to high noise levels. Provides that an occupier shall institute noise reduction measures at the source of the noise in the workplace	Noise emitted during the operation of the Housing units. requires provision of PPE to workers & minimization of noise exposure to the public
25.	Electricity Power Act No. 11 of 1997: The Act establishes the Energy & Petroleum Regulatory Authority (EPRA) with a mandate for the management of energy issues in Kenya. Part III of this Act is dedicated to Electricity energy. Section 30 of this part stipulates that any electrical installation work should be conducted by such a person as one licensed by the ERC as an electrician or an electrical contractor.	Electricity power installation and usage should be done in a manner that seeks to protect the health and safety of the project employees; the local and other potentially affected communities as well as the environment. Electrical installation to service the Kisauni Residential Development should be done by a licensed electrician under EPRA. Liaison with relevant agencies such as KPLC should be sought where necessary. The proponent should adhere to the provisions of this Act in all phases of the project.
26.	The Energy Act 2019: The Act consolidates the laws relating to energy & provides for National & county government functions about energy. Provides for promotion of renewable energy; exploration, recovery & commercial utilisation of geothermal energy; regulation of midstream & downstream petroleum & coal activities; regulation, production, supply & use of electricity & other energy forms;	The project proponent will comply with Legal Notices 43 & 102 to ensure conformity with the Energy Act provisions. The proponent will be required to address provisions raised in the Energy (solar water heating) Regulations 2012.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	Enforcement & review of environmental, health, safety & quality standards..	
27.	The Surveys Act Cap 299 Laws of Kenya: This is an Act of parliament that makes provisions in relation to surveys and geographical names and the licensing of land surveyors.	Surveyors shall carry out surveying in a manner as to ensure that surveys accord in all respect with the provisions of this Act and regulations made there under and shall be responsible for the correctness and completeness of every survey carried out by them or under their supervision. Boundaries and benchmarks for any land or holding should be shown on the map.
28.	Legal Notice No. 60: Hazardous Substances Rules, 2007: The Rules state that the Proponent shall ensure that where chemicals come into contact with employees, the exposure limits set out in the First Schedule of the Regulations are not exceeded. Where employees may be exposed to two or more chemicals in the workplace the Proponent shall work out the combined exposure using the narrative given in the Second Schedule of the Regulations.	The proponent will comply fully with the Regulations.
29.	Land Act, 2012 (Act no.6 of 2012): Provides for the sustainable administration & management of land & land-based resources & connected purposes. The Act also provides for the repeal of the Way Leaves Act (Cap 292) and the Land Acquisition Act(Cap 295)	The proposed project site is registered & has a title deed
30.	The Land Act, 2012: The Land Planning Act (Cap 303) Section 9 of the subsidiary legislation (the Development and Use of Land Regulations 1961) requires that before the local Authority submits any plans to the minister for approval, steps should be taken as may be necessary to acquire the owners of any land affected by such plans. Particulars of comments and objections made by the landowners should be submitted, which intends to reduce conflict of interest with other socio-economic activities. Land Titles Act, Cap 282	The proponent will be required to comply fully with these Acts

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	This Act makes provision for the removal of doubts that have arisen in regard to titles to land and to establish a Land Registration Court. Specific provisions include guidelines on the adjudication of claims and registration of documents after the certificate of ownership is granted. Registration of Titles Act, Cap 281 This Act provides for the transfer of land by registration of titles. Parts within the Act elaborate on mechanisms of bringing lands under the Act, grants, transfers and transmissions of land, registration of titles, and mode and effect of registration, transfers, leases, charges, powers of Attorney, and rectification of titles, among others. Registered Land Act, Cap 300 The Act provides for the registration of title to land and provides for the regulation of dealings in land so registered, and for purposes connected therewith. The Act elaborates on the organization and administration of the Act, the effect of registration, title deeds, certificates of lease and searches, instruments and agents, transmissions and trusts, restraints on disposition, rectification and indemnity, and decisions of registrars and appeals.	
31.	Land Registration Act 2012 (Act no.3 of 2012: Provides for the registration of titles to land, to give effect to the principles and objects of devolved government in land registration and for connected purposes.	The proposed site is registered and has a title deed.
32.	The National Land Commission Act, 2012: Pursuant to Article 67 (2) of the constitution, the functions of the commission are outlined in section 5 of the act as follows; i). To manage public land on behalf of the national and county governments; ii). To recommend a national land policy to the national government;	The proponent will be required to comply fully with this Act. The planning principles outlined in this Act should guide the process of implementation of the projects within the Programmes under study and public participation, a major component of environmental assessment and audits should always be carried out to ensure that all stakeholders are aware of planned activities.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	iii). To advise the national government on a comprehensive programme for the registration of title in land throughout Kenya; iv). To conduct research related to land and the use of natural resources, and make recommendations to appropriate authorities; v). To initiate investigations, on its own initiative or on a complaint, into present or historical land injustices, and recommend appropriate redress vi). To encourage the application of traditional dispute resolution mechanisms in land conflicts; vii). To assess tax on land and premiums on immovable property in any area designated by law; viii). To monitor and have oversight responsibilities over land use planning throughout the country.	
33.	The Environment and Land Court Act, 2011: The Act establishes a superior court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land, and to make provision for its jurisdiction functions and powers, and for connected purposes. The act states that it's an offence for any person who refuses, fails or neglects to obey an order or direction of the Court given under this Act, commits an offence, and shall, on conviction, be liable to a fine not exceeding twenty million shillings or to imprisonment for a term not exceeding two years, or to both	The project proponent should abide to all the provisions of this Act
34.	Land Acquisition Act (Chapter 295): It is an Act of Parliament to make provision for the compulsory acquisition of land for the public benefit. The Act also provides a procedure of acquiring these lands for public use.	The proponent is to ensure that only the legal procedure is used to acquire any additional piece of land if needed.
35.	National Construction Authority Act No. 41 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 proponent will comply with the Act by ensuring that the site and project contractors are registered and certified by NCA.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	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 sections 17 and 18 outline the procedure of registration of contractors.	
36.	The Environment and Land Court Act, 2011: This is an Act of Parliament to give effect to Article 162(2) (b) of the Constitution; to establish a superior court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land, and to make provision for its jurisdiction functions and powers, and for connected purposes The act states that it's an offence for any person who refuses, fails or neglects to obey an order or direction of the Court given under this Act, commits an offence, and shall, on conviction, be liable to a fine not exceeding twenty million shillings or to imprisonment for a term not exceeding two years, or to both. The Act repeals The Land Disputes Tribunal Act (No.18 of 1990).	The project proponent should abide by all the provisions of this Act
37.	The Valuers Act Chapter 532: An Act of Parliament to provide for the registration of valuers and for connected purposes. 3 (1) of the Act establishes the Valuers Registration Board, whose responsibility is to regulate the activities and conduct of registered valuers in accordance with the provisions of this Act.	The project proponent will be required by law to engage the services of only a registered valuer.
38.	Sessional Paper, No. 1 of 2017 on National Land Use Policy: The principle objective of the NLUP is to provide a legal, administrative, institutional and technological framework for optimal utilization and productivity of land and land-related resources in a sustainable and desirable manner at National, County and Sub-county and other local levels.	This Policy incorporates measures and principles to guide all activities, whether proposed or ongoing, that may have a direct or indirect impact on the use of land and its resources. The Policy takes cognizance of the benefits of planned use of land and its resources; and builds in measures for integrated, equitable and sustainable utilization for optimal production. This Policy upholds the values of economic productivity, environmental sustainability and the conservation of culture; and seeks to facilitate their protection and optimal use.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	The Policy offers a framework of recommendations and principles designed to ensure the maintenance of a land use system that will provide for: i. Land use planning, resource allocation and resource management for sustainable development to promote public good and general welfare; ii. Environmental management and sustainable production in the utilization of land resources; iii. Coordination and integration of institutional linkages in planning at sectoral and cross-sectoral levels to foster collaboration and decision-making among different land users; iv. Equitable utilization of land resources to meet governance, social economic and cultural obligations of the people of Kenya; v. Anchoring land development initiatives that will respond positively to the market demands; vi. A comprehensive and efficient GIS-based national land use information management system; vii. An appropriate, independent, accountable and democratic institution for land use conflict resolution; and Mitigating problems associated with poor land use.	
39.	Urban Areas and Cities Act, No. 13 Of 2011: This is an ACT of Parliament to give effect to Article 184 of the Constitution; to provide for the, classification, governance and management of urban areas and cities; to provide for the criteria of establishing urban areas, to provide for the principle of governance and participation of residents and for connected purposes. The objects and purposes of this Act are to establish a legislative framework for— (a) classification of areas as urban areas or cities;	The proposed project is located in Mombasa City which is classified as a City under law.

	Ministerial and County Institutional Integration	**Relevance to the project/license or permit required/ or activity requiring regulation**
	(b) governance and management of urban areas and cities; (c) participation by the residents in the governance of urban areas and cities; and (d) other matters for the attainment of the objects provided for in paragraphs (a) to (c).	
40.	Integrated National Land-use Guidelines, NEMA 2011: The INLUG supports and promotes the implementation of the general goals laid down in the EMCA,1999; as well as supports the implementation of the New Constitution as envisioned in Chapter Five (Sections 60 – 72) in Land and Environment.	The guidelines promote the implementation of sustainable development and a good living environment which is the goal of the proposed Kisauni Residential Development project.
41.	Housing Act Chapter 117: An Act of Parliament to provide for loans and grants of public moneys for the construction of dwellings; to establish the National Housing Development Fund and a housing board for these purposes; and for connected purposes. The Act also lists out the various duties of the National Housing Corporation.	Through this Act, loans and grants are available to the developer of the proposed Kisauni Residential Development project.
42.	County Government by-laws: Prescribes the necessary easements required for the establishment of any project within the County.	Ensure adherence to the by-laws provisions and acquire the necessary approvals and permits

4. PROJECT DESCRIPTION

4.1. Introduction

Kisauni mixed-use development project involves construction of 816 housing units on a total of 34 blocks each being 6 storeys high and retail shops with supporting building services. The services include 2 wastewater treatment plants, vehicle parking and other building services. The residential units once developed will be put in the market for sale. The whole project site covers a total of 13 acres in total divided into two (Right Wing and Left Wing) by a public access road. The breakdown of the typology of the proposed residential housing units and space area utilization in development are shown in table 6 below.

Table 6: Schedule of floor area distribution for the Kisauni mixed-use development.

Item	Description	No. of Blocks	No. of Floors/ Block	No. of Units/ Floor	Total No. of Units	Areas/Unit (M^2)	Total Areas (M^2)
	(676 Parking Spaces)						
	(I) Residential Area						
a)	1 Bedroom Typology	6	6	4	144	40	5760
b)	2 Bedroom Typology	14	6	4	336	60	20,160
c)	3 Bedroom Typology	14	6	4	336	80	26,880
	Total Number & Area of Unit				**816**		**52, 800**
	(II) Commercial Area						
a)	Lettable Area	0	3		6	1060	6300
b)	Circulation Area	0	3		6	450	2700
c)	Washrooms	0	3		6	150	900
d)	Gate house	0	1		2	15	30
	Total Commercial Area						**9, 930**
	(III) Multi-Purpose Area						
a)	Multi-Purpose Area & Changing rooms	0	1		1	255	**255**

The proposed development comprises of housing structures that adopt modern designs which optimize the use of natural lighting and are integrated with harnessing of solar energy to promote use of renewable energy and efficient consumption. The interior of the housing will be spacious and equipped with modern facilities that enhance comfort. Plates 6 and 7 illustrate the exterior and interior views of the proposed development. The development will also encompass modern recreational amenities such as swimming pool, gym, children playgrounds and jogging tracks as indicated in Plate 8.

4.2. Sustainability

The housing design for the Kisauni Residential Development project proposes to incorporate the following component to promote sustainability in the housing project:

- Design to provide natural lighting
- Design for reuse of rainwater
- Design to provide natural ventilation
- Installation of energy efficient fixtures
- Solar street lighting

The proposed housing development will also be fitted, connected and served with the existing infrastructural facilities such as water provision services system, sewer waste disposal channel system, power and electricity connectivity service from the power grid, solid waste management and disposal collection point, etc. The proposed project is in line with the zoning of the area that permits developments as such housing units' facilities.

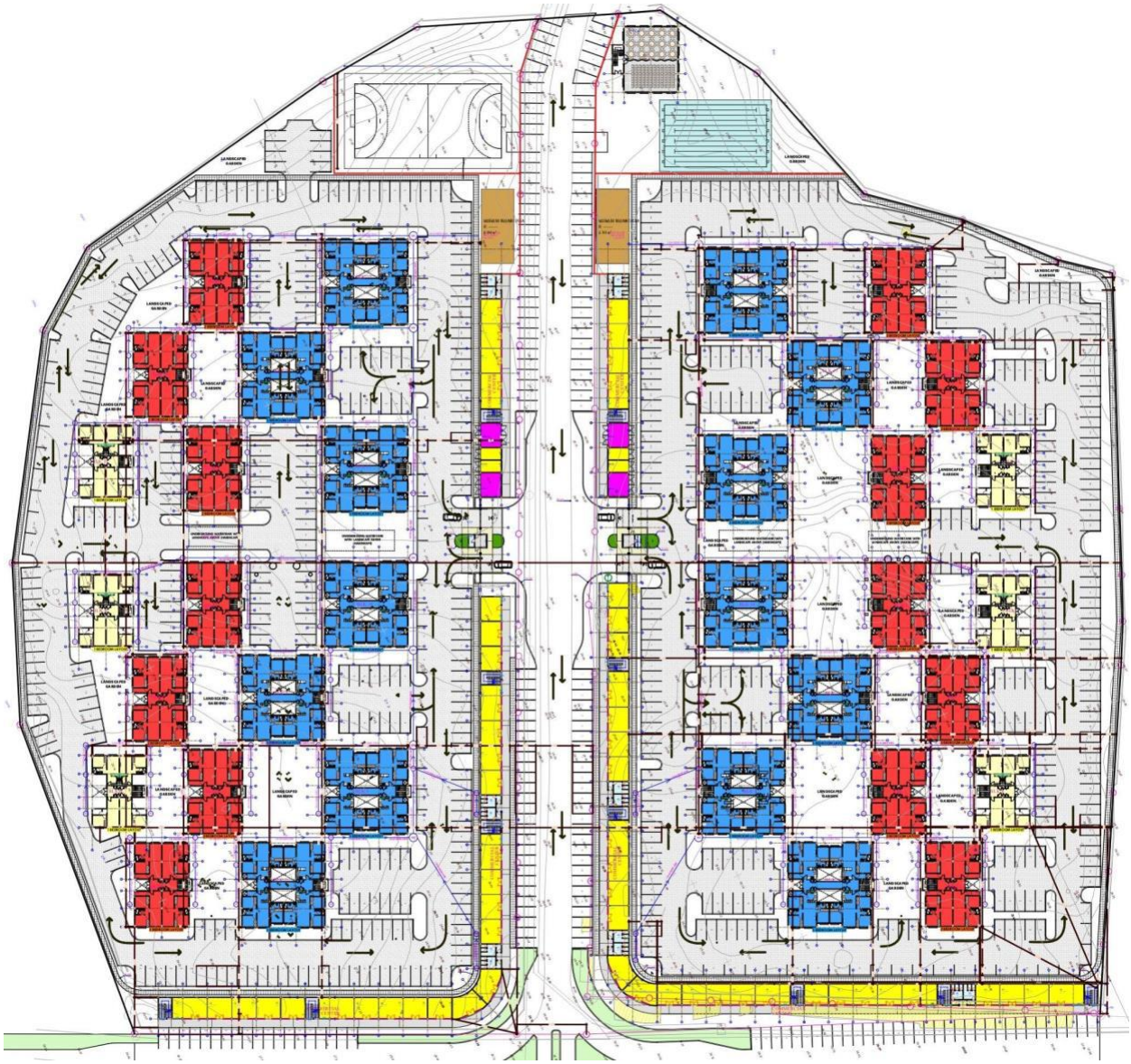

Figure 11: Masterplan of the proposed housing project

The typical architectural floor plan layouts of the proposed housing typologies are as illustrated in figure 12, figure 13 and figure 14 below:

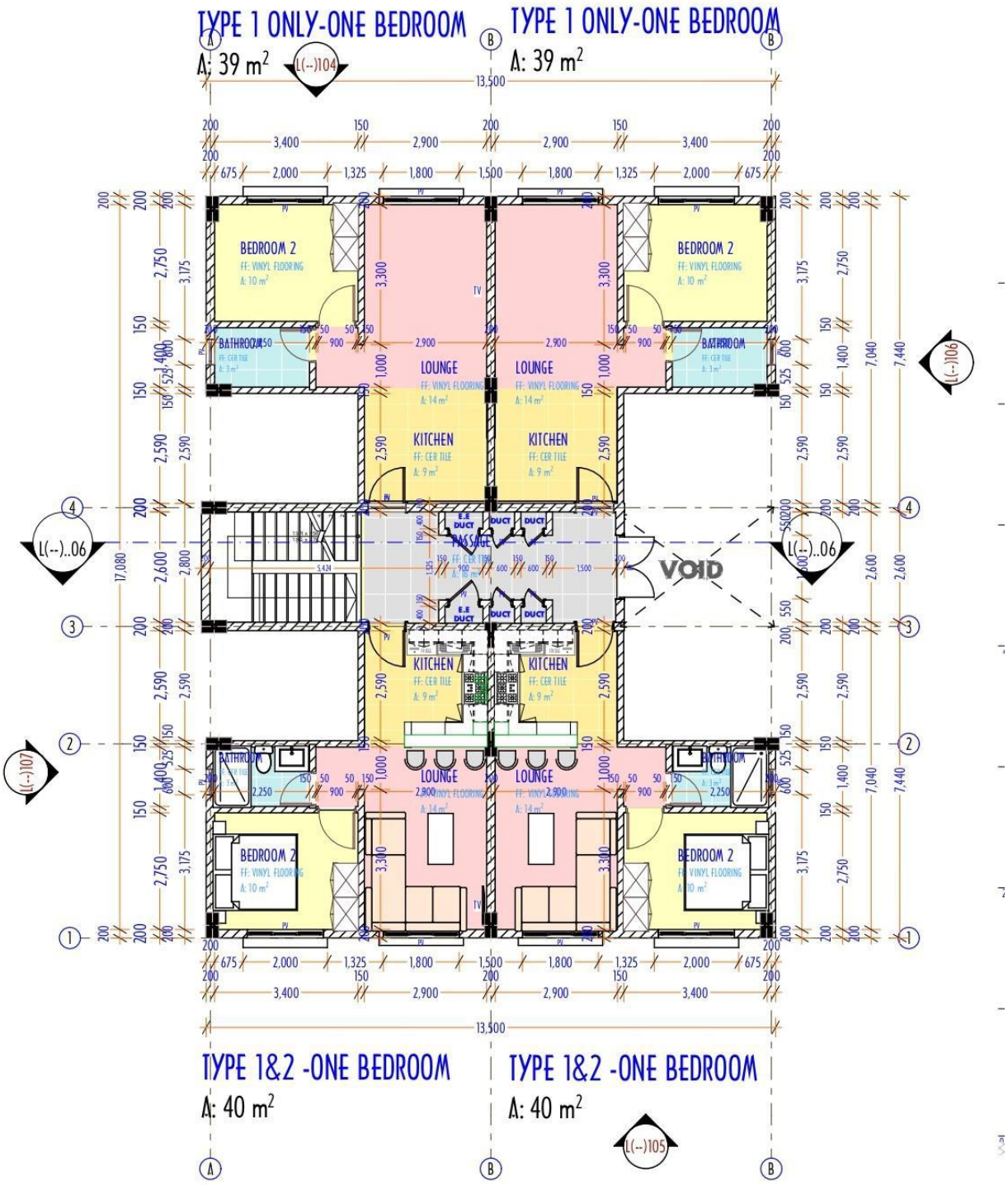

Figure 12: Floor Plan Layout for a 1 Bedroom Housing Unit

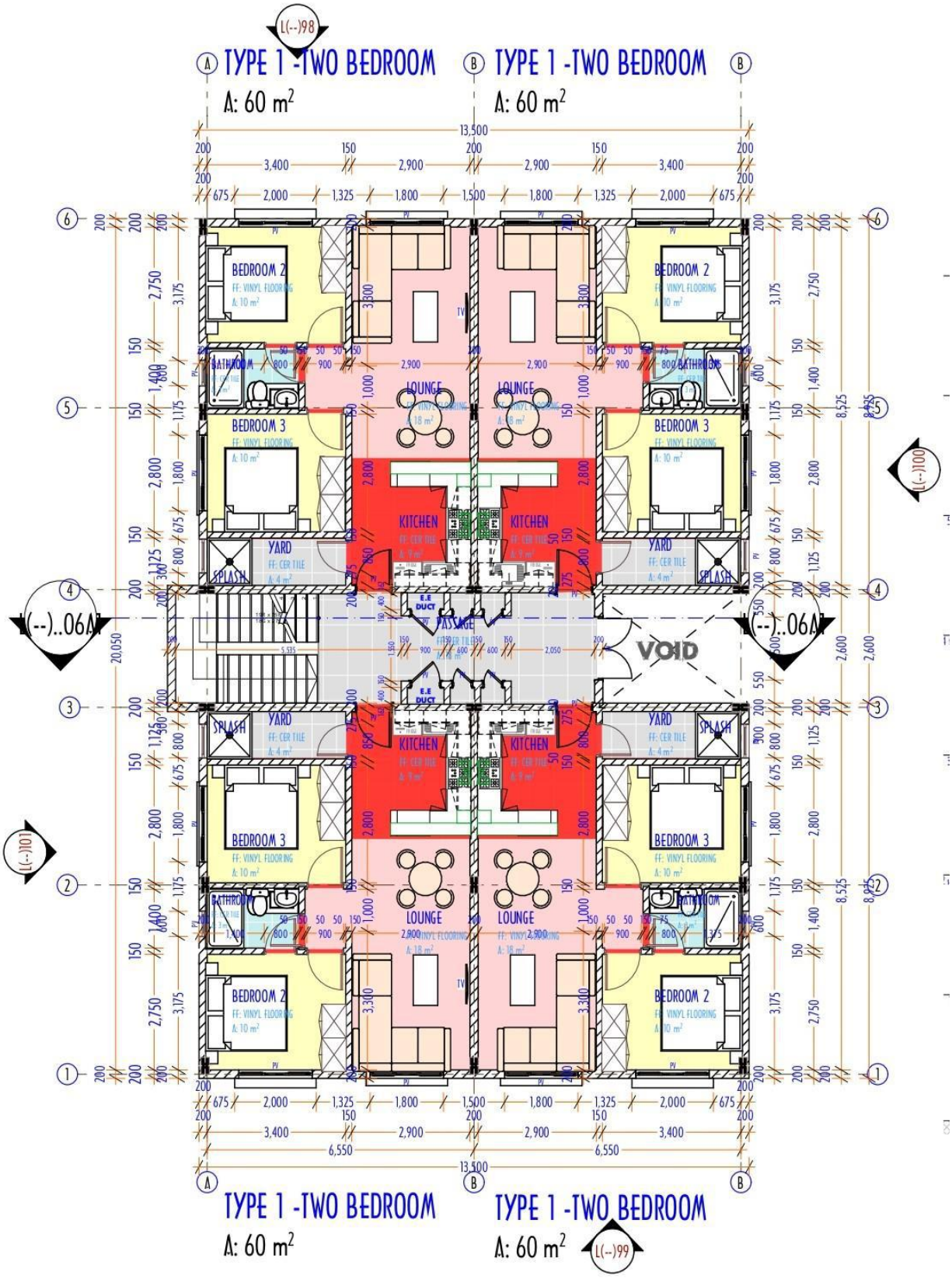

Figure 13: Floor Plan Layout for a 2 Bedroom Housing Unit

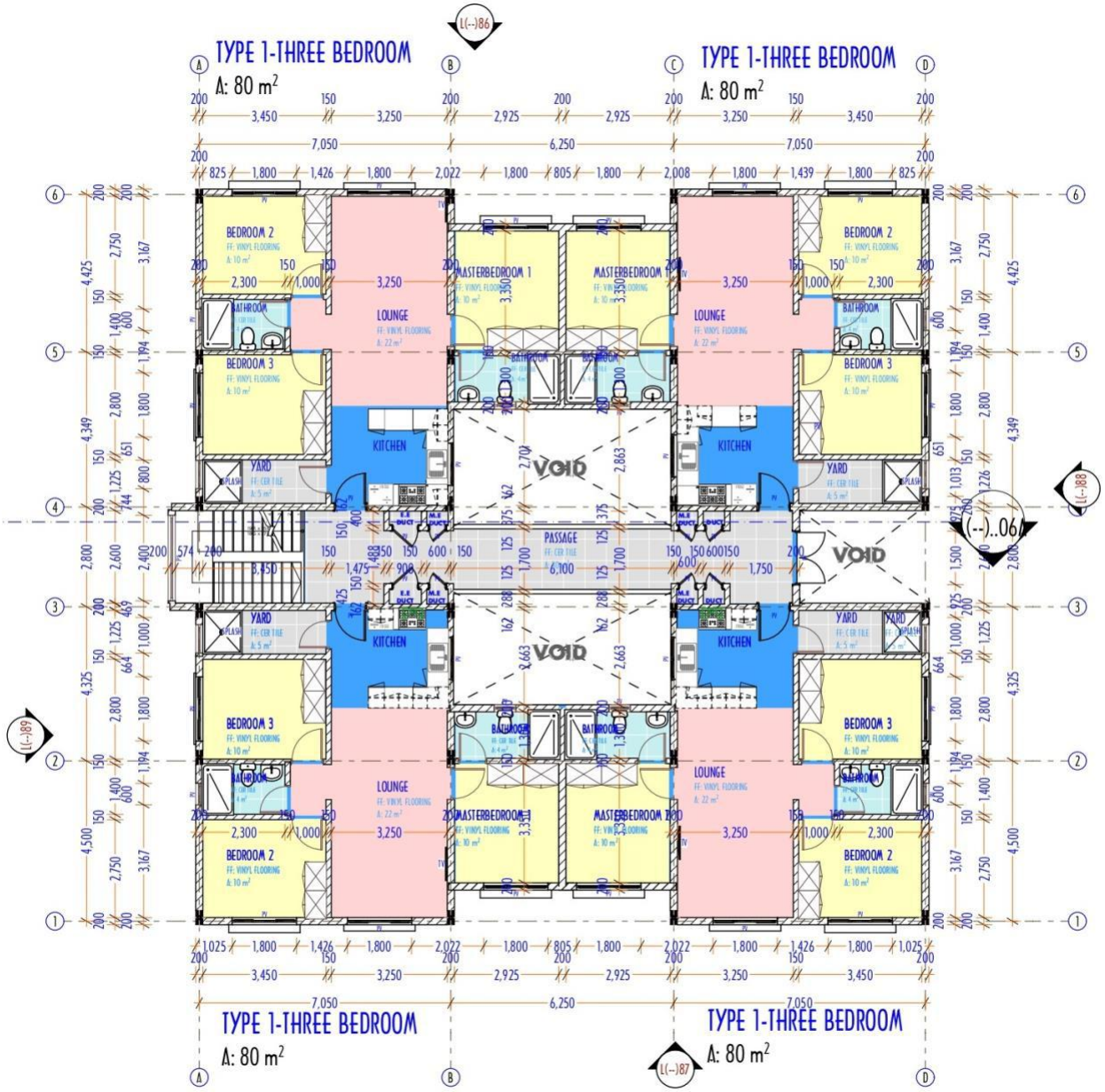

Figure 14: Floor Plan Layout for a 3 Bedroom Housing Unit

Plate 6: Exterior view of the Proposed Development

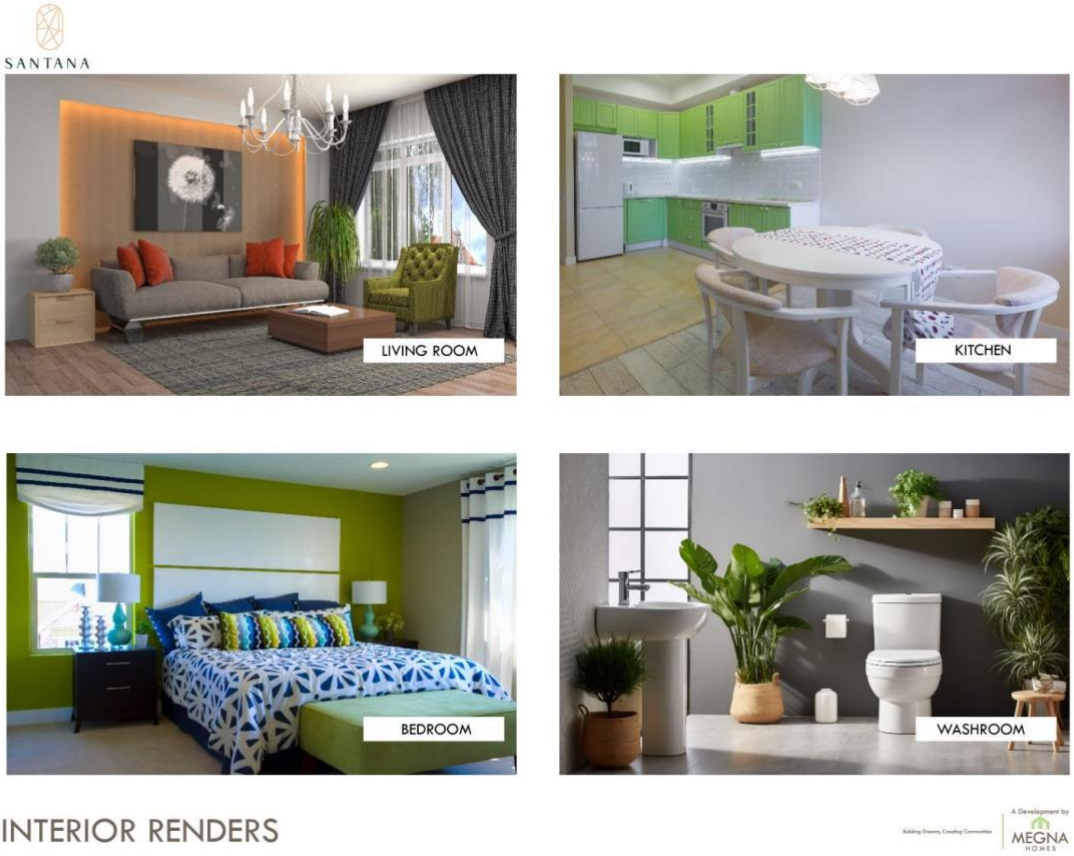

Plate 7: Artistic impressions of the Interior view of Kisauni housing units (Santana)

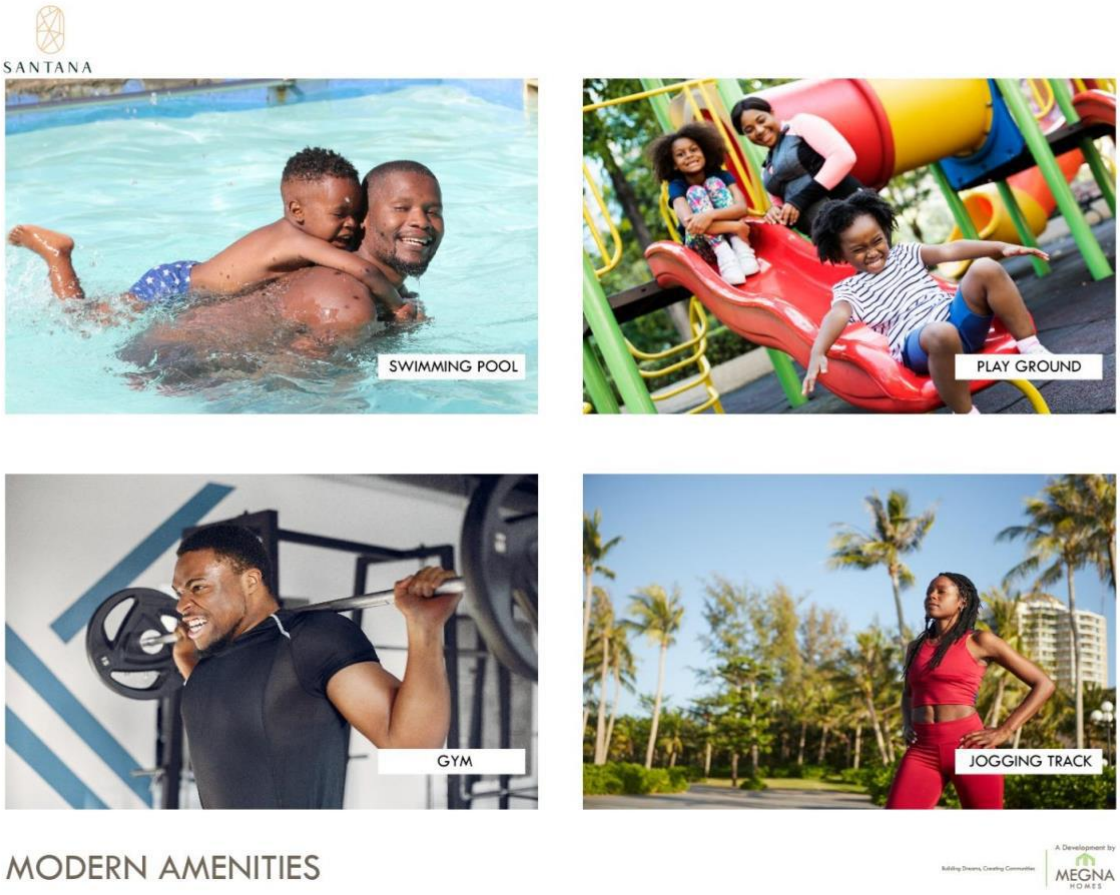

Plate 8: Envisaged amenities within the proposed project

4.3. Sewage system design for Kisauni Residential Development

The system is to treat wastewater of a flow of 205. 2 m^3 daily.

Table 7: Design Parameters for the WWTP for Kisauni Residential Development Project

Process Design Data

Unit	Heads / Cycle	Flow	Total flow	BOD/pe (g)	Total BOD	SS/pe (g)	Total SS	Ammonia (g)/pe	Total Ammonia	PE
Resident	2,736	150	410,400	60	164,160	80	218,880	8	21,888	
			410,400		164,160		218,880		21,888	2736

Primary Tank Influent Load		STP Influent Load	
Hydraulic Load	410,400 ℓ	Hydraulic Load	410,400 ℓ
BOD Concentration	400 mg/ℓ	BOD Concentration	320 mg/ℓ
COD Concentration (at 1.8)	720 mg/ℓ	COD Concentration (at 1.8)	576 mg/ℓ
Suspended Solids	533 mg/ℓ	Suspended Solids	30 mg/ℓ
Ammonia as N concentratio	53 mg/ℓ	Ammonia as N concentration	53 mg/ℓ

4.4. Construction Inputs

The project inputs will include the following:

i) The materials that shall be used will include stones, cement, sand, crushed rock (gravel/ballast), ceramic fixtures, reinforcement bars, wood/timber, glass, painting materials, plastic, electrical and mechanical

fixtures. All these materials shall be obtained from licensed dealers who have complied with the environmental management guidelines and policies and approved by Kenya Bureau of Standards (KEBS).

ii) Several machines shall be used which will include earth moving equipment (excavators, loaders, wheel loading shovels and backhoe), material handling equipment (cranes and hoists), construction equipment (concrete mixers and vibrators) and engineering vehicles (trailers, tippers and dumpers).

iii) The project will also require labour forces of both skilled and non-skilled workers. The skilled personnel will include the project consultants (architects, engineers, quantity surveyors and environmental experts) and a contractor with a team of foreman, masons, plasterers, carpenters, plumbers, welders, electricians, glaziers, painters and casual labourers.

Other construction inputs will include wastewater and sewer disposal, water services, power and electricity connectivity and supply from the main power grid or provided by generators.

4.5. Description of the Project's Construction Activities

4.5.1. Mobilization of Building Materials

The proponent plans to source several building materials locally and expressed the confidence that the materials can be procured locally. The great emphasis laid on procurement of building materials from within the local area makes both economic and environmental senses since it reduces negative impacts of transportation of the materials to the project site through reduced distance of travel by the materials transport vehicles. Building materials are transported to the project site from their extraction, manufacture, or storage sites using transport trucks. There is adequate road linkage for the purpose of smooth transport of building materials into the project site.

4.5.2. Storage Materials

Building materials will be stored on site according to their need. Bulky materials such as rough stones, ballast, sand and steel will be carefully piled and covered on site. Materials such as cement, paints and glasses among others are to be stored in temporary storage rooms conveniently within the project site for this purpose

4.5.3. Masonry, Concrete Work and Related Activities

The construction of the proposed houses will involve a lot of masonry work and related activities. General masonry and related activities will include stone shaping, concrete mixing, plastering, slab construction, construction of foundations, and erection of building walls and curing of fresh concrete surfaces. These activities are known to be labour intensive and will supplement by machinery such as concrete mixers.

4.5.4. Structural Steel Works

All the beams and floors shall be reinforced with steel metals to enhance the stability of the proposed building. Structural steel works will involve steel cutting, welding and erection.

4.5.5. Roofing and Sheet Metal Works

Roofing activities will include iron sheet cutting, raising the roofing materials such as structural timber to the roof and fastening the roofing materials to the roof. Proper planning and measuring must be done before procurement of the sheets to ensure not much solid waste is generated after roofing is completed.

4.5.6. Electrical Work

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

4.5.7. Plumbing

Installation of pipe work for water supply and distribution will be carried out from the existing supply and then to associated facilities. In addition, pipes will be installed to connect sanitary facilities with the existing Mombasa County sewerage system serving the area, and for drainage of stormwater from the rooftop into the peripheral drainage system. Plumbing activities will include metal and plastic cutting, the use of adhesives, metal grinding and wall drilling among others.

4.5.8. Landscaping

To improve the aesthetic value or visual quality of the site once construction is complete, the proponent will carry out extensive landscaping especially at the front and rear parts of the buildings that shall involve establishment of small and attractive flower gardens. It is noteworthy that the proponent will use plant species that are available locally and fast growing for the landscaping.

4.6. Description of the Project's Operational Activities

4.6.1. Solid Waste and Wastewater Management

The developer has proposed to contract a licensed company responsible for solid waste handling for the defect period of the operational phase of the housing units. Solid waste generated within the premises during its operation phase, where it will be occupied by residents who generate household wastes in their day to day activities. These household wastes will be collected and temporarily stored in color-coded bins for each type of waste from the blocks. The segregation bins will placed along the corridors at designated points from where a NEMA licensed contracted company will be responsible for collecting and disposing off these wastes to a designated dumpsite approved by the relevant authority.

4.6.2. Cleaning

Once the proposed development is complete a management company operated by the housing unit owners will be responsible for regular washing and cleaning of the common roads and way leaves, however, the residential tenants/owners will be responsible for cleaning their own houses. Cleaning operations will involve the use of substantial amounts of water, disinfectants and detergents.

4.6.3. General Repairs and Maintenance

Throughout the operational phase of the development project, general repairs will be carried out to ensure normal functioning of the buildings infrastructures, components and avoid any hazard, injury or accident to the occupants. Such activities will include repair of floors, repairs and maintenance of electrical gadgets and equipment, repairs of leaking water pipes, painting, maintenance of flower garden and replacement of worn out materials among others.

5. ANTICIPATED ENVIRONMENTAL IMPACTS

5.1. Positive impacts

Potential positive impacts from the proposed redevelopment will be both short term and long term. This will include but not limited to the following: -

5.1.1. Employment opportunities

During the construction phase, job opportunities to both skilled and casual workers will be available. Several workers including casual labourers, masons, carpenters, joiners, electricians and plumbers are expected to work on the project site from the project start period to its completion date. Apart from casual labour, semi-skilled and unskilled labour and formal employees are equally expected to obtain gainful employment opportunities during the project construction phase. Employment opportunities are one of the long-term major impacts of the proposed residential development that will be realized after the construction phase and during the operation and maintenance of the facility.

5.1.2. Development of local infrastructure;

The implementation of the proposed project will lead to opening up the area by adding more residential space that ensures optimal land use as compared to the current use or any perceived future use of the said plot.

5.1.3. Revenue to government;

There will be gains in the local and national economy. Through consumption of locally available building materials including concrete tiles, timber and cement. The consumption of these materials, fuel oil and others will attract taxes including VAT which will be payable to the government.

5.1.4. Enhancement of other businesses:

The proposed project will improve income/economic status of people within the project neighbourhood. There will be gains in the local and national economy. Through consumption of locally available building materials including concrete tiles, timber and cement. The cost of the materials will be payable directly to the producers.

5.1.5. Improved security in the area:

This is going to be realised through employment of security guards both during construction and operational stages of the proposed project. Lighting of the project area and its environs will also help boost the security of the area during night hours.

5.1.6. Optimal use of land

By building the units the design has incorporated an optimal use of the currently undeveloped land.

5.2. Negative Impacts & Mitigation Measures

5.2.1. Surface Run-off and Storm Water Drainage

The proposed project construction phase will lead to increased release of sediments into the drainage systems. The building roofs and pavements may lead to increased volume and velocity of stormwater or run-off flowing across the area covered by the buildings. This can lead to increased amounts of storm water entering the drainage systems, resulting in overflow and damage to such systems.

Potential Mitigation Measures

1. After completion of construction, the proponent shall embark on comprehensive landscaping.
2. Construct gently sloping drains to convey water at non-erosive speed.
3. Drainage channels shall be covered; say with gratings, to avoid occurrence of accidents and entry of dirt.
4. Semi permeable materials will be used for construction of pavements.

5.2.2. Traffic Impact

Increased road traffic in and out of the project area will be experienced during all the phases of the project. Traffic increase is anticipated both from vehicular & non-motorized sources. This traffic will be highly dependent on the traffic activity on the project site access road.

During construction of the facility there will be an increase of car trips (construction workers) and truck movements. Most construction workers will arrive on site before 7am which is before the morning peak period. A large majority of the site work force will complete works by 4pm so their return trips will be outside of the evening peak traffic period. There will be few traffic related to construction throughout the day. Hence, the public will, like always, use the road and even access roads. Truck arrivals are distributed throughout the day with no defined peak. There will be few arrivals after 4pm since when a truck arrives on site; enough time has to be allowed for unloading the truck prior to the site closing also with sufficient time for the driver to return to the depot before close of business.

The following traffic control plans will help minimize traffic impact:

- Pedestrian management plan to ensure that pedestrians are aware of the construction driveways
- Signage indicating the presence of truck turning to and from construction site from and to the project access road

Most construction transport accidents result from the inadequate separation of pedestrians and vehicles. This can usually be avoided by careful planning, particularly at the design stage, and by controlling vehicle operations during construction work. The following actions will help keep pedestrians and vehicles in the construction site and on the access road apart:

- Entrances and exits - provide separate entry and exit gateways for pedestrians and vehicles;
- Walkways - provide firm, level, well-drained pedestrian walkways that take a direct route where possible;
- Crossings - where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;
- Visibility - make sure drivers driving out onto public roads can see both ways along the footway before they move on to it;
- Obstructions – do not block walkways so that pedestrians have to step onto the vehicle route; and
- Barriers - think about installing a barrier between the roadway and walkway.

Potential Mitigation measures

1. The timing of the truck arrivals and departures will largely be outside of the commuter peak periods
2. Warning signs will be placed to advise pedestrians and manage their safety when walking across the construction driveways.

3. During activity periods of high traffic volume (such as excavation and concrete pours), pedestrians will be guided walking across the construction driveways exit by traffic controllers.
4. The use of public transport and carpooling will be actively encouraged.
5. Vehicle access to neighboring properties will be retained.
6. No machinery or material will be stored on the footpath or verges or on public areas.
7. All materials handling will be done on site.

5.2.3. Solid Waste Generation

Solid waste will consist of construction debris, cement bags, wood, broken glasses, containers, metal, sharp objects such as nails, organic waste, paper, and plastic among others during the development construction phase.
Potential Mitigation Measures

1. Efficient use of building material to reduce waste and recycling/reuse where feasible.
2. Engage the services of registered waste handlers to collect and transport waste to designated disposal sites.
3. Provision for waste management rooms at strategic places within the development facility.
4. Segregation of waste at the source during the project cycle.
5. To manage waste in line with the Waste Management Regulations, 2006.
6. Use of an Integrated Solid Waste Management System (ISWMS); through a hierarchy of options: source reduction, recycling, composting and reuse, will facilitate waste handling during operation/occupation phase.

5.2.4. Air Pollution, Particles & Dust Emission

Air pollution will be among the major negative impact during the site preparation and construction phase as a result of increase in amounts of dust emanating from the excavation, construction activities and stockpiled earth materials. Air pollution may also be as a result of emission of fumes and particles or combustion of fossil fuels from the construction machinery.

Potential Mitigation Measures

1. Ensure no burning of waste such as paper and plastic containers on sites/non-designated areas.
2. Minimize exposed areas through the schedule of construction activities to enable dust control.
3. Minimize the period for idling of machinery and construction vehicles.
4. Monitor the air pollution levels regularly as per the Air Quality regulations.
5. Onsite dirt piles or other stockpiled material should be covered, wind breaks installed, water and/or soil stabilizers employed to reduce wind-blown dust emissions.
6. All staff employed at the construction site and visitors must be provided with dust masks and other PPEs.
7. All waste must be transported off-site for processing, not burnt or stored for any longer than is absolutely necessary.
8. Machines must not be left idling for unnecessary periods of time.
9. Alternatively, fuelled construction equipment shall be used where feasible
10. Perform construction at times that persons are expected to be at work and school.
11. All raw materials where possible must be sourced as close as possible to the construction site thus reducing the emissions from vehicular traffic.
12. Regular and prompt maintenance of construction machinery and equipment to minimize generation of hazardous gases.
13. Regular sprinkling of water on work areas to prevent fugitive dust violations.
14. Restricting heights from which materials are to be dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading.
15. Use environmentally friendly fuels such as low sulphur diesel.

16. Buffer area of trees and other vegetation will serve as natural windbreaks.
17. Use of dust nets/screens around the construction site to contain and arrest dust.
18. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials will not leak from the vehicle.

5.2.5. Dust pollution

The expected air pollutants from the proposed project will include dust, particulate matter and gaseous emissions from construction materials and equipment. Dust will be generated from the excavations and materials delivery. Particulate matter will be generated from dry materials including sand, cement, gravel, etc. Smoke, hydrocarbons and nitrogenous gases will be emitted from machinery exhausts. These will be expected to increase slightly and will be localized hence expected to be experienced within 30m radius of the project. Air pollution is expected to be experienced during the construction period.

Potential Mitigation Measures

1. Spray stockpiles of earth with water
2. Avoid pouring dust materials from elevated areas to ground
3. Cover all trucks hauling soil, sand and other loose materials
4. Provide dust screen where necessary
5. Sensitize workforce including drivers of construction vehicles

5.2.6. Increase Generation of Effluent/Liquid Waste

There will be an increase in the generation of liquid waste as a result of an increase in population within the project site both during the construction and operation phases of the development.

Potential Mitigation Measures

1. All drainpipes passing under buildings should be of heavy-duty PVC pipe tube encased in concrete surround.
2. All manholes should have heavy-duty covers set and double sealed airtight as approved by specialists.
3. Installation of two biological sewer treatment plants for treating wastewater discharged from the development during operation phase.
4. Ensure regular maintenance of foul water drainage works at the premises to prevent clogging and fore-stall breakdowns.
5. Proper decommissioning of the sanitary facilities shall be carried out once construction is complete.
6. Provision of adequate and appropriate sanitary facilities for the workers during construction phase and tenants during the operation phase of the facility.
7. Sanitary facilities shall be kept clean always through regular cleaning.
8. The design of the internal sewerage system and the biological sewer treatment plants shall consider the estimated discharges from individual sources and the cumulative discharge of the entire project, that is, it will have the capacity to consistently handle the loads even during peak volumes.

5.2.7. Socio-economic Impacts Potential Mitigation Measures

1. Persons from the nearby communities should be employed to work on the construction site.
2. Designate the roles and responsibilities of biliogical sewer treatment plants, which will enable a clear chain of command in the event of an accident and allows persons to be aware of their responsibilities in the event of such occurrences.
3. Place several fully equipped first aid kits on the project sites.
4. Ensure that some workers are trained in basic first aid practices.

5. Signs must also be placed around the construction site displaying the numbers of the person responsible for handling emergencies on the site
6. Develop and implement a Health and Safety Training Manual for employees;
7. Identify a specific area on the project site for vending type activities
8. Purchase goods and supplies from suppliers within the area

5.2.8. Noise & Excessive Vibrations

Noise pollution during construction will be as a result of use of heavy machinery and vehicles during transportation of materials to and from the site. Vibrations will be experienced during the concrete vibration during concreting of the structural elements and hacking of the walls and building elements during plastering of the structure.

Potential Mitigation Measures

1. All machines and equipment shall be maintained regularly to reduce frictional noise.
2. All noisy activities shall be scheduled concurrently during the construction period to reduce the exposure period to sensitive receptors
3. All workers shall be trained and provided with PPEs such as helmets, earmuffs, dust mask, etc. which will always be used when operating within the site area.
4. Billboard shall be erected at the construction site entrance to notify of the construction activities and timings.
5. Construction works shall be carried out only during the day from 0800hrs to 1800 hrs.
6. Drivers delivering materials shall avoid unnecessary horning of the trucks/vehicles.
7. Equipment installed with noise abatement devices shall be used as much as practicable.
8. Noise shields shall be used on noisy equipment, such as corrugated iron sheet structures, to minimize the exposure to the neighbours and other workers within the site
9. Regular monitoring of noise levels at the site as per the regulations.
10. The construction vehicles and machinery shall be switched off when not in use to reduce idling time.
11. Install portable barriers to shield compressors and other small stationary equipment where necessary
12. Silenced machinery and instruments should be employed to reduce the impact of noise on the existing neighbours and workers.
13. Equipment such as drills, graders and cement mixers should also be used when the least number of neighbours can be expected to be affected
14. Those working with machinery, vehicles and instruments that emit high levels of noise should be provided with ear plugs and earmuffs

5.2.9. Water Demand and Usage

The demand and usage for water will increase during the project cycle. During construction, water will be required for activities such as cement mixing, curing of concrete, sprinkling of water on dusty areas to suppress dust and drinking water for workers. During the operation phase, water will be needed for bathing, washing, cleaning, drinking and cooking. This will place strain on the existing water supply by Mombasa Sanitation and Water Company (MOWSCO).

Potential Mitigation Measures

1. Drill a borehole to supplement the county supply.
2. Prompt detection and repair of all the water fixtures and fittings to reduce water wastage
3. Provide notices and information signs to sensitize on means and needs to conserve water resource i.e. “Keep/Leave the Tap Closed”, etc. This will awaken the civic consciousness of the workers and residents with regard to water usage and management.
4. Provision of adequate underground and roof tanks for water storage that covers two days’ water demand.

5. The contractor shall use water bowers and tankers to bring in water for construction activities i.e. during periods of high-water demand (i.e. during slab formation). Water fetching shall however be subject to authorization by the relevant authority.
6. Use water efficient appliances and fixtures for conservation of water during the project cycle.

5.2.10. Energy Demand and Usage

The proposed project will lead to increased demand and use of energy during the construction stage (fuel for running machinery and other equipment) and during operation phase (electricity used by the occupants of the units).

Potential Mitigation Measures

1. Exterior lights shall be controlled by a programmable timer.
2. Generator should be provided as a full backup energy source throughout the development.
3. Install and routine maintenance of energy efficient appliances e.g. LED bulbs etc.
4. Monitor energy use during construction and set reasonable limit.
5. Put off all lights immediately when not in use or are not needed.
6. The water booster set will contain inverter pumps for energy saving and precise control of flow and pressure rate.
7. Turn off machinery and equipment when not in use.
8. Use of solar energy as an alternative source of energy.

5.2.11. Emergence and Spread of Social Vices

The proposed development will lead to potential for employment opportunities and access to new services which will draw people to the area more specifically the project site. This factor will further lead to a temporary increase in economic activities and employment of skills for the development. This will lead to population influx which might lead to changes in or unwanted behaviors in the area. This unwanted or change in behaviour may be in the form of loose morality, an increase in school drop-out due to cheap labour, child labour, drug use and abuse, theft/robbery and increased incidences of HIV/AIDS and related infections/diseases and other communicable diseases.

Potential Mitigation Measures

To minimize project effects on local social set up, the proponent will;

1. Conduct periodic sensitization forums for employees on ethics, morals, general good behavior and the need for the project to co-exist with the neighbours.
2. Ensure enforcement of relevant legal policy on sexual harassment and abuse of office.
3. It is recommended that the contractor employs workers from the immediate area where possible to avoid social conflict
4. Offer awareness, guidance and counselling on HIV/AIDS and other STDs to employees;
5. Provide safety tools such as condoms to employees

5.2.12. Occupational Health & Safety

Waste material such as pieces of glass and nails left lying on the ground may cause injuries/accidents to the workers on site. Food for the construction workforce is usually provided by mobile individuals most of which operates without licenses. This can compromise health of the workers especially if such foodstuffs are prepared in unhygienic conditions. During construction phase, there will be increased air and noise pollution which are considered harmful to human health. The neighbours and workforce involved shall be subjected to this noise.

Potential Mitigation Measures

1. All workers shall use properly fitting PPEs to avoid injuries and illness which include working boots, overalls, helmets, goggles, earmuffs, masks, gloves etc.
2. Comply with OSHA 2007 and all other relevant regulations governing health and safety of workplaces.
3. Ensure proper solid waste disposal and collection facilities
4. Ensure dustbin cubicles are protected from animals, rains and are well covered
5. Proper handling and disposal of solid waste
6. Proper treatment of wastewater
7. Construction activities must therefore be limited to the hours of 8:00 a.m. and 6:00 p.m.
8. Local individuals preparing food for the workers at the site shall be controlled, monitored and evaluated to ensure that food is hygienically prepared.
9. Provide adequate and functional sanitary facilities for the workers.
10. Provide appropriate signage and warnings in work areas to avoid injuries to the workers and occupants.
11. Provide first aid facilities and ensure that workers are trained on emergency response such as first aid skills.
12. Safety awareness may be gained through regular safety meetings, safety training or personal interest in safety and health.
13. The contractor shall adapt a suitable emergence response plans to manage occurrence of anticipated hazards during construction phase.
14. Workers shall always be sensitized on social issues such as drugs, alcohol, diseases such as HIV/AIDS and STIs etc.

5.2.13. Loss of vegetation

1. Landscape the site by planting grass and trees at all disturbed areas
2. Care for the trees/plants
3. Retain vegetation screens to reduce the visual effect of this stage of the development.
4. Ensure that local building materials and muted colors are used to reduce the visual impacts of the development and the landscaping to hide it or blend in with the local environment.
5. Maintain all mature trees (trees > 25 cm) within the development where possible;
6. Incorporate as much local plants found within the area into the final landscaping of the property;
7. The developer should incorporate trees that are used by bird species for foraging to attract bird species to the area.

6. PUBLIC CONSULTATIONS & ENGAGEMENT

6.1. Introduction

Consultation with various stakeholders and public participation was done throughout the Environmental Impact Assessment Project Report preparation and compilation. This was in line with the requirements of Legal Notice No. 101, Kenya Gazette Supplement No. 56 of June 13th 2003, the Environmental (Impact Assessment and Audit) Regulations, 2003. Consultations and public participation were encompassing, interactive and intensive, to ensure that as many stakeholders as possible and the public were reached. Special attention was paid to the general public especially those drawn from the proposed project site, and the immediate neighbourhood in Kisauni. Views, comments, concerns and opinions of stakeholders concerning the proposed project were sought. The consultation was vital as it served to;

- Inform all stakeholders of the proposed development within their locality.
- Explain to the stakeholders the nature of the proposed project, its objectives and scope.
- Give stakeholders a forum to present their views, concerns and issues regarding the proposed development.
- Obtain suggestions from stakeholders on possible ways that potential negative impacts can be effectively mitigated.

The consultation was in the form of household interviews, site visits, questionnaire surveys and public baraza.

6.2. Public Consultation schedule

Public consultation barazas were organized through the office of the Deputy County Commissioner (DCC) Kisauni Sub-County. The public barazas were held on the proposed project site on 3rd and 4th and 5th April 2024. Once the dates and venues of the meetings were confirmed, public notices and invitation letters were sent out 7 days before the 1st day of the meetings, public notices on A2 sizes were printed and put up at strategic places in the project area. The public meeting announcements were also aired on Pwani FM radio station (Appendix 8). A copy of the public notice was shared on the various villages within Kisauni Location.

Table 8: Schedule of ESIA public barazas

Meeting Venue	Date	No. of attendees	Chairman	Secretary
Project site	3rd April 2024	114	ACC Kisauni - Paul	Bitiali Mshimba
Project site	4th April 2024	126	ACC Kisauni - Paul	Bitiali Mshimba
Project site	5th April 2024	81	Snr. Chief Said Shume	Bitiali Mshimba

6.2.1. Consultative Public Participation held on 3rd April 2024 at the Project Site

The meeting was attended by a total of 144 participants inclusive of local residents from the neighbourhood, local administrators and leaders, women and youth representatives as well as religious leaders.

Summary of Concerns raised during the Public Participation

1. Local residents are to be prioritized for employment during construction activities. At least 75% of the workforce should come from Kisauni and be selected based on the skills they have residents have
2. The investor to sell the houses at an affordable price after construction is completed
3. Community representatives are to be incorporated in the project committee to ensure there is timely and efficient dissemination of information to the residents as well as follow-up to ensure promises made are fulfilled.
4. Provision of Houses to security officers who will be manning the area
5. Proper management of waste and stormwater during the construction phase and operation phase of the project
6. Local residents to be considered in awarding tenders for supplying construction materials and services. The vetting process should be lenient and accommodative
7. Inclusion of a worship facility within the proposed project
8. Maintenance of drainage to be extended beyond the facility to the larger neighbourhood
9. Local residents to be considered and allowed to access the social amenities offered in Santana

6.2.2. Consultative Public Participation held on 4th April 2024 at the Project Site

This meeting convened a total of 126 participants from the project site neighbourbood.

Summary of Concerns raised during the Public Participation

1. There should be a mechanism for assuring house ownership (eg title deed/share certificate) which an individual should be issued with once he/she has purchased a house from the investment
2. Establish a community policing to patrol the area which will help to curb insecurity in the area.
3. Foreseeable increase in traffic in the area resulting from Santana development and thus need for mitigation measures to be put in place. Also need for maintenance of the roads to keep them in good condition.
4. Developer to help the residents who were affected during the floods which could be undertaken as a CSR.
5. Local community especially the youths to be prioritized for employment opportunities during project implementation to suppress the high unemployment in the area
6. A Memorandum of Understanding between the developer and the committee representing the community which is to be used as a reference in case problems or misunderstandings arise.
7. The houses constructed should be offered at affordable prices that can be manageable by the local residents
8. Local residents to also be offered with opportunity to supply some of the raw materials required during construction
9. The houses should be environment-friendly by incorporating cleaner technologies such as the use of solar energy
10. Address the drainage problem which is likely to be overwhelmed by addition of stormwater from the proposed project

Plate 9: Representatives from Participants airing their views and concerns in Public Participation Forum held on 4th April 2024 at the Project Site

Plate 10: Mr. Badawy from the ESIA Consultant team responding to the concerns raised by the participants

Plate 11: A community representative talks about Drainage issue in the neighborhood

Plate 12: ESIA Consultant team engaging community residents during a Public Participation Forum held on 3rd April 2024 at the Project Site

6.2.3. Consultative Public Participation held on 5th April 2024 at the Project Site

This meeting convened a total of 81 participants from the project site neighbourbood.

Summary of Concerns raised during the Public Participation

1. There should be a mechanism for assuring house ownership (eg title deed/share certificated) which an individual should be issued once he/she has purchased a house from the investment
2. The youth in the area should be provided with employment opportunities during construction. There should be inclusivity during employment
3. The proponent to consider providing a free water point for the residents in the area as a CSR
4. The drainage issues should be addressed to avoid effects associated with stormwater
5. The framework of house unit acquisition and ownership should be made clear to the residents
6. A consideration is to be made to provide tender for garbage collection from the establishment to the already existing service providers in the area.
7. Measures should be put in place to ensure the issue of traffic congestion

6.3. Summary of issues raised from the consultation process

Table 9: Summary of issues raised from the consultation process

Item/Theme	Issues/Concerns/Views Raised
Livelihoods	● Local residents are to be prioritized for employment during construction activities and ensure inclusivity and equity ● Local citizens to be considered in tenders for supplying construction materials ● Tender for garbage collection from the establishment to the already existing service providers in the area.
Project Implementation	● Establish a committee to coordinate addressing of issues arising during project implementation and facilitate information sharing ● Houses should be environment-friendly by incorporating cleaner technologies such as the use of solar energy
Drainage & Waste	● Proper maintenance of drainage works to prevent flooding due to increased stormwater ● Proper collection and management of waste from the facility

Traffic	● A potential increase in traffic conditions in the area ● A consideration to improve road conditions in the area
Security	● Establish a community policing and patrol to enhance the security of the neighbourhood
Other	● The proponent to consider providing a free water point for the residents in the area as a CSR ● The framework of house unit acquisition and ownership should be made clear to the residents and proof of ownership (eg title deed/share certificated) issued to the purchaser once payment is completed

6.4. Potential Project Impacts

6.4.1. Positive Impacts

1. Job opportunities. In case of job opportunities during construction stage like drivers, construction site casual laboures, and project operation stage like cleaners, maids, caterers, the local communities should be considered first.
2. A boost to business. The proposed project will provide more clientele to other already established businesses
3. There will be cooperation with other businesses on rooms and conference facilities in case of influx.
4. The project proponent is a good neighbour and construction of the proposed housing units will reduce the rate of insecurity in the area.

6.5. Consultations beyond ESIA Process

In order to ensure that the development runs smoothly, consultations should be structured to aid the completion of the project implementation. These consultations should therefore be preceded by further engagement of various stakeholders under the following stages:

- Construction phase and reported through the Initial Environmental Audit; and
- Operation phases and reported through the Statutory Environmental Audit of the project.

The consultation should address pertinent issues including the sustainability and suitability of the operation and maintenance to ensure acceptable standards

6.6. Grievance redress mechanism

Grievance redress mechanisms are necessary avenues for allowing the project's host community members to voice concerns as they arise and, if necessary, for corrective action to be taken promptly. Such mechanisms are important to achieving transparency in resolving disputes, especially between communities, among community members and the contractor. Therefore, the Consultant proposes that all the grievances to be logged, filed and addressed immediately as they arise and the local community be given an assurance of deserved consideration.
A well-functioning grievance mechanism:

I. Provides an acceptable, transparent, and credible process to all parties, resulting in outcomes that are seen as fair, effective, and lasting;
II. Enables more systematic identification of emerging issues and trends and facilitates corrective action.
III. Ensures timely redress of grievances for satisfactory implementation of resettlement and completion of the project interventions as scheduled.

The factors to be considered in the design of an effective grievance procedures include the following:

- A grievance redresses mechanism which is simple, accessible, affordable, and accountable.
- Provide suggestions on how information is made available to the local community.
- The proposed structures have capacity and knowledge to address grievances and would need to be given the authority to resolve complaints.
- A Complaints Form be introduced and should be dully filled by the involved parties.

Therefore, this ESIA has identified procedures that will enable the local community to lodge a complaint or a claim without cost and with the assurance of a timely and satisfactory resolution of that complaint or claim in which case, the dialogue will always suffice.

6.6.1. Grievance Redress Structure

Majority of the complaints resolution would be most appropriate if undertaken at the local level for convenience in terms of time and cost. In addition, the GRM proposed should be credible and acceptable to local community for acceptability of resolutions made thereof. In the proposed grievance redress structure, the aggrieved people will report their grievances, either verbally or in writing, to the Construction Engineer (directly or through the community representative). The complaint will be logged and the established committee will convene to resolve the complaint to the satisfaction of the complainant(s). If the matter cannot be addressed to the satisfaction of the complainant within the prescribed period, the complainant may refer the issue to the chief's office for consideration and if the issue is not resolved to the satisfaction of the complainant, the complainant has the right to seek redress from the Court of law.

6.6.2. Determination of Corrective Action

The grievance team will hold a meeting based on grievance received and deliberate on the raised issue to come up with a resolution within 7 working days. The action will be recorded in the grievance register and verdict reported back to complainants. If more time is required for investigation, this will be clearly communicated verbally and in writing to the aggrieved person in advance.

6.6.3. Mechanisms for Adjudicating Grievances and Appealing Judgments

The nature of the grievance will ascertain the period (not exceeding 7 working days) necessary for the GRC to address the grievance. Where resolution is not reached at the level of the GRC or if the complainant does not receive a response or is not satisfied with the outcome within the agreed time he/she can escalate/appeal to the Chief's Office. Where the complainant still feels unsatisfied with the response to the appeal from the office of the chief, he/she as a last resort may submit the complaint to a court of law.

6.6.4. Closure of a Grievance

All grievances shall be disposed of within 21 days of its receipt and a final reply shall be sent to the complainant. A grievance shall be considered closed when:

- The complainant has shown verbal or in-writing acceptance of the resolution;
- The complainant has not responded within 21 days after receipt of the resolution;
- The complaint has not been appealed within 14 days after receipt of the resolution.

7. PROJECT NEED & ANALYSIS OF ALTERNATIVES

Analysis of project alternatives of the Kisauni Residential Development considered three possible alternatives/options namely:

Alternative 1: NO Project" Option
Alternative 2: the "YES" alternatives
Alternative 3: Alternative access route to the project site

7.1. The "no project" alternative

This option will mean that the project will not be undertaken. This implies that the proposed project will not be undertaken. This implies that all potential homeowners would have to seek home ownership in alternative developments. The project area would also remain in its rundown state. In analysing this option, the following was considered;

- ✓ **Technology transfer**: implementation of the proposed housing development will see transfer of various technologies to our people locally. This includes design technologies for waste water treatment and renewable energy incorporation in buildings. Therefore, the 'no project' alternative will not be favourable to this realization.
- ✓ **Contribution to local housing needs;** it is the government policy to enable home ownership for its citizens. One way of achieving this is by encourage private sector involvement in contribution in meeting rising housing demand in the country. The proposed project if implemented will contribute to meeting housing needs in Mombasa. The no project alternative will negate this potential gain from the proposed project if implemented.
- ✓ **Employment creation**; - the current government policy on employment and wealth creation aims at creating as many jobs as possible to meet the ever-increasing employment demand in the country. If the 'no option project' was to be considered, then this government target may not be realized.
- ✓ **Investor attraction; -** if the no option is considered it will not be consistent with the government aim of attracting investments in the country and especially encourage local private investment in the housing sectors to contribute to addressing rising demand for decent, low cost housing.
- ✓ **Financial investment:** -The 'no' option will mean that Mombasa county's economy will have to forego 2 billion shillings investment in the housing sector.

Therefore, if no option will be pursued it is likely that we may lose more than what is to be gained if the proposed project is to be implemented.

7.2. The 'yes' project alternative

This was considered to be a viable option. This option was considered viable as opposed to the 'no option' because the yes project alternative implies that the project be implemented and once implemented there will be a number of gains that will be realised including the following;

- ✓ Employment creation at the local level
- ✓ Increased quality housing stock
- ✓ Boost on investor confidence in the housing sector.
- ✓ Development and improvement of local infrastructure.
- ✓ Increased revenue in the form of taxes to the government.

7.3. Alternative project site access road

Currently the road leading to the project site is a 6-meter tarmac road (Old Malindi road- UCB12) that gives way to cabro pave road of the same width leading to the project site and continuing about 500 meters to the Mtopanga estate. The access road is expected to get congested and degraded during construction phase of the project due to use by commercial vehicles delivering building materials to the site.

7.4. Waste Water Management Alternatives

Four locally available technologies are discussed below:

7.4.1. Wastewater Treatment Plant

This involves the construction of a plant that will enable the recycling of the waste water from the project activities to reusable standards and utilised within the site in activities such as irrigating the flower gardens and flashing of the toilets. It is usually expensive to construct and maintain, but it is the most reliable, efficient and cost-effective in the long term.

7.4.2. Stabilization Ponds/Lagoons

This refers to the use of a series of ponds/lagoons that allow several biological processes to take place, before the water is released back to the river. The lagoons can be used for aquaculture purposes and irrigation. However, they occupy a lot of space but are less costly. No chemicals are used/heavy metals sink and decomposition processes take place. They are usually a nuisance to the public because of smell from the lagoons/ponds. This option is not preferable in the area because the required space is not only available, and the local community are not likely to accept the option.

7.4.3. Constructed/Artificial Wetland

This is one of the powerful tools/methods used in raising the quality of life and health standards of local communities in developing countries. Constructed wetland plants act as filters for toxins. The advantages of the system are the simple technology, low capital and maintenance costs required. However, they require space and a longer time to function. Long-term studies on plant species on the site will also be required to avoid weed biological behavioural problems. Hence it is not the best alternative for this kind of project

7.5. Solid Waste Management Alternatives

A lot of solid waste will be generated from the proposed project throughout its three phases (construction, operational and decommissioning) and an Integrated Solid Waste Management System (ISWMS) is recommended for its management. The following shall be given preference in descending order:

1. The developer shall give priority to waste reduction at source of the materials. This option will demand a solid waste management awareness programme in the management and the residents.
2. Secondly, Reducing, Recycling, Reuse and composting of the waste. This calls for a source separation programme to be put in place.
3. The third priority in the hierarchy of options is combustion of the wastes that are not recyclable.
4. Finally, sanitary land filling will be the last option for the developer to consider.

8. ENVIRONMENT, SOCIAL MANAGEMENT & MONITORING PLAN

8.1. Introduction

The EMP is the key outcome of the Environmental and Social Impact Assessment (ESIA) process for the proposed Kisauni Residential Development. In real meaning, the ESMP is a mechanism to meet the recommended environmental and social mitigation measures. The ESMP is an instrument that will allow the proponent, developers and other key stakeholders to integrate environmental components during implementation, operation and decommissioning phases of the project.

8.1.1. Scope and Objectives of the ESMP

The Environmental Management Plan will focus on mitigating the impacts identified during the environmental and social assessment. It is an instrument that will allow developers, beneficiary communities and other key stakeholders to integrate environmental components during the various phases of the project. This plan is meant to establish measures and procedures to control the analysed impacts and monitor their progress. It will achieve the following in the long run:

(i) Provide the National Environment Management Authority (NEMA) with a tool to ease the evaluation of the objectives at different phases of the project, taking into account the Kenyan environmental legislation;
(ii) Provide clear and mandatory instructions to the proponent, beneficiary communities and other key stakeholders with regard to their environmental responsibilities in all phases of the project;
(iii) Ensure continuous compliance of Kisauni Residential Development, beneficiary communities and other key stakeholders with Kenyan legislation and policies regarding the environment;
(iv) Assure the regulators and interested and affected parties the satisfaction of their demands in relation to environmental and social performance.

8.1.2. Applicable Legislation

The developed ESMP will be in line with legislation applicable to the project. International normative instruments concerning the environment, as well as international best practice have also been considered.

8.1.3. Principles of Environmental Management Plan

The project should be implemented taking into account the need to minimize potential negative impacts and maximize its potential positive impacts on the biophysical and socio-economic environment as well as health and safety of workers and the public. This commitment must be made at various levels, from the senior management level of the proponent to the levels of all parties involved in the implementation of the project.

8.2. Recommendations/Commitments of the ESIA

The ESIA document contains a series of recommendations related to mitigation measures, monitoring and management. A key role of the ESMP is to put them all in a single framework. For each identified impact in the ESIA, the ESMP provides in a tabular format the following:

(i) A list of mitigation measures (activities) that Mysha Investments Ltd and other key stakeholders will implement in accordance with each phase and activity of the project, to ensure that the mitigation objectives are met in full;
(ii) The role and responsibility of each of the stakeholders to ensure full implementation of mitigation measures; and

(i) The timetable of implementation/monitoring activities.

8.3. Responsibility

The proponent assumes full responsibility for implementing and monitoring the required measures to mitigate or enhance the environmental impacts. The effectiveness of mitigation measures should be evaluated by the proponent and the contractor.

8.4. Environmental Awareness

The proponent will be sensitive to the needs of the environment so as not to degrade (or degrade to a minimum) the existing environmental conditions. It is the proponent's primary responsibility to ensure that all parties that are directly involved in the construction and operation phases of the project, including managers and employees are aware of the need to prevent or minimize environmental degradation. The awareness activities will be guided by the following issues:

(i) Prevention of pollution of surface water and groundwater;
(ii) Prevention of air quality degradation;
(iii) Prevention of increased noise levels;
(iv) Prevention/reduction of social and economic disruptions;
(v) Prevention of risks to health and safety of workers and the general public.

8.5. Mitigation

All activities related to the lifecycle of the project will be subjected to appropriate mitigation measures to ensure that negative impacts are properly mitigated and managed. Mitigation involves identifying the best options to be adopted to minimize or eliminate negative impacts, highlighting the benefits associated with the proposed project and the protection of public and individual rights.

Practical measures are therefore sought to reduce adverse impacts or enhance the beneficial impacts of the project.

8.6. Monitoring

The key objectives of monitoring are:

(i) To ensure that the EMP is implemented;
(ii) To evaluate the effectiveness of the mitigation measures;
(iii) To verify predicted impacts;
(iv) To provide feedback to licensing authorities.

Table 10: CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PLAN

Environmental Impact /Activity	Mitigation Measures	Responsibility	Cost (Kes)	Indicators
Commissioning of the Construction Works	1. Site hand-over and Groundbreaking	Project team (Lead Consultant/Architect, contractor /proponent)	Part of/Covered in the Project Cost	Presence of the project Team
Housing for Construction / Site staff	2. Construction of a Camp	Contractor	200,000	Presence of a Camp
Security for Construction Material	3. Construction of Site Stores 4. Construction materials are to be delivered in small quantities to minimize storage problems	Contractor	100,000	Presence of Site store
Extraction & Use of Building Materials	1. Availability and sustainability of the extraction sites as they are non-renewable in the short term 2. Landscape changes	Contractor/Proponent/ project team	Part of/Covered in the Project Cost	Material site rehabilitation
Collapse of Building during Construction	1. Ensuring Building Strength and stability 2. Use of appropriate construction materials and reinforcements as per specifications 3. Ensuring building components are as per designs 4. Proper supervision **5.** Ensure proper timelines are followed e.g. curing time	Contractor/project team	Part of/Covered in the Project Cost	Presence of the project Team
Disturbance of Traffic flow during construction	1. Proper signage 2. Awareness creation 3. Education for materials truck drivers	Contractor/Project team and general public	100,000	Presence of site Noticeboard /Hoarding. Presence of Security guards to control traffic Presence of warning signs and education materials

Environmental Impact /Activity	Mitigation Measures	Responsibility	Cost (Kes)	Indicators
Soil Erosion	1. Create and Maintain soil traps and embankments. 2. Landscaping after completion of construction	Contractor/Proponent Architect/Site Engineer Landscape Architect	400,000	Lack/Absence of Soil Erosion
Soil Excavation leading to site disturbance	1. Excavate only areas to be affected by buildings 2. Dumping of excess excavated materials to sites designated by NEMA and Council 3. Restoration of sites Excavated	Contractor	200,000	Landscaping after completion of construction
Noise Pollution and Vibration	1. Ensure the use of serviced and greased equipment 2. Switch off engines not in use 3. Construction work to be confined to between 8 am to 5 pm 4. Ensure the use of earmuffs by machine operators	Proponent and Contractor	Part of the Routine operation procedure	Lack of complaints
Risks of Accidents and Injuries to Workers	1. Education and awareness to all construction workers 2. Ensure the use of appropriate personal protective clothing 3. Provide First Aid Kits on site 4. Ensuring Building Strength and Stability **5.** Proper supervision	Proponent Contractor	Part of the Routine operation procedure	Presence of a well-equipped First Aid kit, Security Guards & register on the site
Health and Safety	1. Provide First Aid Kits on site 2. Proper signage and warning to the public of heavy vehicles turning 3. Ensuring Building Strength and Stability 4. Provide clean water and food to the workers 5. The contractor is to abide by all construction conditions	Proponent Contractor	Part of the Routine operation procedure	Presence of a well-equipped First Aid kit, Security Guards & register on the site
Solid Waste Generation	1. Ensure waste materials are disposed of on Council and NEMA-approved sites 2. Ensure re-use of materials that can be re-used 3. Use of the 3rs – Reduce, Re-use, Re-cycle	Proponent Contractor	200,000 annually	Absence of Solid waste on the site
Traffic	1. All material handling will be done on-site. There will be no need to establish construction zones on the Old Malindi road in the Mtopanga estate access road since the public uses the roads	Proponent Contractor		The presence of ample parking on the premises

Environmental Impact /Activity	Mitigation Measures	Responsibility	Cost (Kes)	Indicators
Energy Consumption	1. Use electricity sparingly since high consumption of electricity negatively impacts these natural resources and their sustainability **2.** Use of Standby Generators	Proponent Contractor	300,000 annually	Presence of KPLC power lines Presence of Generators
Excessive Water Use	1. Excessive water use may negatively impact on the water source and its sustainability	Proponent Contractor	250,000 annually	Presence of MOWASCO water lines Metering of water

Table 11: OPERATIONAL PHASE ENVIRONMENT MANAGEMENT PLAN

Environment Aspect	Mitigation Measures	Responsibility	Cost (Kes)	Indicators Of Success
Traffic	2. Provide adequate parking facilities within the project site 3. Provide separate access points for pedestrian traffic 4. Maintenance of adequate signage with the development, old Malindi road & turn off to Mtopanga estate road 5. Warning signs will be placed to advise pedestrians and manage their safety when walking across the construction driveways. 6. Have a public vehicle staging area on the Old Malindi Road highway 7. Keep the the footpaths or verges or on public areas well-maintained & clear of any obstructions.	Proponent / Residents	Routine operation procedure	The presence of ample parking on the premises
Solid Waste Generation and Management	8. Regular inspection and maintenance of the waste disposal systems during operation phase 9. Establish a collective waste disposal and management system 10. Provide waste disposal bins to each house well protected from adverse weather and animals.	Proponent Estate Managers	70,000 monthly	Presence of NEMA-registered waste management companies Presence of waste handling bins Absence of wastes
Liquid Waste Generation & Management	11. Regular inspection and maintenance of the waste disposal systems during the operation phase 12. Connection to Sewer system/septic tank/ biodigester	Proponent Estate Managers	400,000 monthly	Effective WWTP Sludge disposal records Register of licence sludge handler
Increased loading on Infrastructure services	13. Have paved local access road and walkway system 14. Encourage rainwater harvesting 15. Provision of increased water storage capacity	Contractor	Contract cost	Absence of run-off Presence of good roads

Environment Aspect	Mitigation Measures	Responsibility	Cost (Kes)	Indicators Of Success
	16. Provide adequate stormwater drainage system	Proponent Estate Managers		Pavements and drainage channels
Community wellbeing	17. Increased Housing stock in the area and Kenya 18. Increased economic activities 19. Employment generation, income earnings and housing capital stock formation	Contractor Proponent Neighbourhood associations Estate Managers		
Storm Water impacts	20. Provide roof gutters to collect and direct roof water to drains 21. Construct drains to standard specifications 22. Develop a storm water drainage system and link it to natural drains	Proponent Contractor	340,000	Absence of Flooding and dampness in the building
Disruption of existing natural environment and modification of micro-climate	23. Development restricted to follow zoning policy/approved density – building line, plot coverage and plot ratio. 24. Careful layout and orientation of buildings to respect wind and sun direction. 25. Adequate provision of green and open space planted with grass, shrubs and tree cover. 26. Minimum use of reflective building material and finishes for roof, wall and pavement.	Mombasa County Government Project team (Contractor Proponent, Architect Or Lead Consultant	50,000	Proper orientation Planted trees/Landscaping Adherence to building master plan
Insecurity	27. Have a single entry point that is manned 24 hours	Contractor, Proponent		

Environment Aspect	Mitigation Measures	Responsibility	Cost (Kes)	Indicators Of Success
		Neighbourhood associations		

Table 12: CONCEPTUAL DECOMMISSIONING PLAN

Environmental Concern	Mitigation Measures	Responsibility	Cost (Kes)	Indicators
Building Safety	1. Assess the condition of buildings to ascertain their usefulness	Engineer/Proponent	600,000	Engineer and Tests on the building
Land and Building use	2. Ascertain the Planning development policy	Local Authority Physical Planner	650,000	Consultants present
Accidents/Injuries	3. Securing the Site by fencing off	Contractor/Proponent	500,000	The presence of a perimeter fence
Undisconnected Utilities	4. Ensure disconnection of all services 5. Remove all surface and underground cables & wiring	Contractor	600,000	Absence of cabling
Solid Waste Generation (demolition waste)	6. Ensure waste materials are disposed of on Council and NEMA-approved sites 7. Ensure re-use of materials that can be re-used 8. Use of the 3rs – Reduce, Re-use, Re-cycle	Proponent/Contractor	200,000	Absence of Debris

Environmental Concern	**Mitigation Measures**	**Responsibility**	**Cost (Kes)**	**Indicators**
Noise and Vibration	9. Deploy adequately serviced equipment 10. Switch off engines not in use 11. Demolition work is to be confined to between 8 am to 5 pm 12. Ensure the use of earmuffs by workers	Proponent/Contractor	80,000	Lack of complaints from the neighbours

9. CONCLUSION & RECOMMENDATIONS

9.1. Conclusion

The proposed housing project represents a model for decent housing in the Bakarani, Kisauni area. The project site is a 13.96-acre piece of land that is divided into two sections by a public access road to Mtopanga Estate. The project site proximity grapples with challenges related to stormwater, effluent, & solid waste management. There are high expectations from the community and residents that this project can address these pre-existing issues conclusively. To meet these expectations, the proponent will have to continue working proactively with the county & national government to sustain the goodwill the project proposal enjoys.

9.2. Recommendations

The project is in alignment with the country's development framework. To increase the social acceptability of the project the following proposals are advanced:

1. Validate stormwater volumes in the Mtopanga estate catchment to ascertain the adequacy of existing stormwater infrastructure
2. Develop a program to unblock existing drains and stormwater channels as well as a robust maintenance regimen for within & without the development site.
3. Adopt green infrastructure design principles to handle stormwater from the project site.
4. Have an active/resources community liaison committee to assist contractors share opportunities equitably with the local community and deal with grievances during the construction phase
5. Plan the project so that construction of housing units takes the shortest time possible;
6. Ensure that worker's occupational health and safety standards are maintained through capacity building, proper training, and providing protective clothing and equipment.
7. Annual environmental audits should be carried out on the project to ensure compliance of the project with the mitigation measures outlined in the Environmental Management Plan (EMP),
8. All activities concerning construction and maintenance such as work execution and site inspection shall be strictly monitored by an engineer or a designated official. Engineers and/or designated officials shall be trained and experienced enough to judge the appropriateness of the work executed to carry out the monitoring properly.
9. Upon completion and occupation, the tenants should engage services of waste handling companies registered by NEMA in compliance with Environment Management and Coordination (Solid Waste) Regulations 2006.

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APPENDICES

Annex 1 Copy of Titles for the project site

Annex 2 Certificate of Incorporation & PIN of proponent

Annex 3 EIA/EA practicing licenses of Experts

Annex 4 ESIA terms of reference approval letter

Annex 5 A Summary of Bill of Quantities

Annex 6 Architectural drawings for the development

Annex 7 Hydrogeological report

Annex 8 Baseline Air & Noise survey reports

Annex 9 Minutes of public participation meetings

Annex 1 Copy of Land document for the project site

Myshe

No. 12315

...ed in Register Book.

COLONY AND PROTECTORATE OF KENYA

LAND TITLES ORDINANCE 1908.

SCHEDULE I. FORM B.

CERTIFICATE OF OWNERSHIP.

I, *Adrian John Maclean* Recorder of Titles do hereby certify that *Kassim bin Rashid Elmandhri of Mombasa*

is the proprietor of an estate in fee (together with the mineral Rights) (1) in that piece of land situate in the ... of *Seyidie* at *Mto Panga (N.E. of Mombasa Island)* and which is delineated on the plan No. *13388* deposited in the Office of the Recorder of Titles at Mombasa and numbered *257 of Sec. II* and containing *Thirteen point nine acres (13.9)* or thereabouts and subject to mortgages and other interests (if any) as hereunder written. (2)

Certificate ... *21.7.20*

Survey ... *21.7.20*

A. J. Maclean

RECORDER OF TITLES.

FEES PAID.
50% remitted
Recorder of Titles.
Date *5. 4. 24*

Mortgages and other interests above referred to:

DEPT. OF LANDS, E.A.P.
Land Registration Division. Coast Registry
Presented *3/10/1921*
Time *10* a.m.
Registrar

THE FOLLOWING DOCUMENT HAS BEEN REGISTERED AGAINST THIS TITLE.
CR 11/5/21 DATE OF REGISTRATION *13th May 1932*
Letters of Administration ... Rashid bin Kassim ...

THE FOLLOWING DOCUMENT HAS BEEN REGISTERED AGAINST THIS TITLE.
461 ... DATE OF REGISTRATION *13th May 1932*
... to Rashid bin Kassim bin Rashid ...

13th DAY OF *May* 1932 REGISTRAR OF TITLES.

14 Memorandum of Discharge of charge by deposit of Document of Title of above entry No 13.

108 26.7.1979

15 Transfer to Jaspal Singh Kandhari and Cyril Ondato In respect of ½ Undivided share of Edmund Samuel Fondo.

Presentation No. 109 Date of Registration 26.7.1979

Registrar

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE

Transfer to Cyril Ondato in respect of ½ Undivided share of Jaspal Singh Kandhari.

181 Date of Registration 22.4.1980

Registrar

THE FOLLOWING ... REGISTERED AGAINST THE TITLE

Transfer to Mistry Jadva Parbat & Co Ltd. in respect of ½ share of Cyril Ondato.

249 24.11.80

Registrar

Transfer to Mistry Jadva Parbat and Company Limited. In respect of ½ share of Edmund Samuel Fondo).

150 Date of Presentation 22-4-81

Reg. Istar

TRANSFER TO:- MYSHA INVESTMENTS LIMITED.

11-5-2010

Annex 2 Certificate of Incorporation & PIN of proponent

No. CPR/2009/13003

CERTIFICATE OF INCORPORATION

I hereby CERTIFY, *that* -

MYSHA INVESTMENTS LIMITED

is this day Incorporated under the Companies Act (Cap. 486) and that the Company is **LIMITED**.

GIVEN under my hand at Nairobi this **28 th** day of **October** Two Thousand and **Nine**

Registrar Of Companies

KENYA REVENUE AUTHORITY

Taxpayer Registration Certificate

Document Number: 628363

General Data of the Taxpayer

Name	MYSHA INVESTMENTS LIMITED		
Taxpayer PIN	P051319894X	**TaxPayer Category**	DOMESTIC
Registration Date	Jan 25, 2010		
Activity	Real estate activities with own or leased property		

Contact Information

District	MOMBASA NORTH	**City/Town**	MOMBASA CITY (NORTH)
Street / Road	DIGO ROAD	**Building**	SITA PLAZA
Area Name	69	**LR Number**	
P.O. Box	80100 - 81860		
Main Email Address	INFO@LIGHTWAYS-KENYA.COM		

Tax Obligation	**Obligation Register Date**
NO OBLIGATIONS	JAN 25, 2010

*This certificate is computer generated and therefore not signed. It is valid certificate issued under the authority of KRA.

Annex 3 EIA/EA practicing licenses of Experts

Annex 4 ESIA terms of reference approval letter

Annex 5 A summary Bill of quantity

Annex 6 Architectural drawings

Annex 7 Hydrogeological report

Annex 8 Baseline Air & Noise survey reports

Annex 9 Minutes of public consultation meetings

Annex 9 Waste water reticulation plan