ENVIRONMENTAL IMPACT ASSESSMENT (EIA) STUDY REPORT FOR

PROPOSED JEVANJEE AFFORDABLE HOUSING DEVELOPMENT LOCATED ON PLOT L.R NO. 209/5458 NAIROBI ALONG QUARRY ROAD, IN NAIROBI COUNTY.

<table>
<thead>
<tr>
<th>Proponent</th>
<th>Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nairobi Bachelors Jevanjee Estates Ltd</td>
<td>Systel Engineering Ltd [Firm of Experts]</td>
</tr>
<tr>
<td>PO Box 47215 - 00100</td>
<td>NEMA Reg. No. 8835</td>
</tr>
<tr>
<td>Nairobi</td>
<td>P.O. BOX 19109-00100,</td>
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<td>NAIROBI, KENYA</td>
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<td></td>
<td>CIC Plaza 5th Flr,</td>
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<td></td>
<td>MARA RD.</td>
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<tr>
<td>Coordinates</td>
<td>P.O. BOX 19109-00100,</td>
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<td>1°16'42.3&quot;S 36°49'56.2&quot;E</td>
<td>NAIROBI, KENYA</td>
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<tr>
<td>April, 2020</td>
<td>CIC Plaza 5th Flr,</td>
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<td>MARA RD.</td>
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DOCUMENT CERTIFICATION

This Environmental Impact Assessment Study report has been in accordance with the Environmental Management and Coordination Act (EMCA) 1999 and the Environmental Impact Assessment and Audit Regulations 2003 which requires that every development project must have an EIA report prepared for submission to the National Environmental Management Authority (NEMA). We the undersigned, certify that the particulars in this report are correct and righteous to the best of our knowledge.

EIA REPORT SUBMISSION DETAILS

ENVIRONMENTAL CONSULTANTS

Systel Engineering Ltd [Firm of Experts]
NEMA Reg. No. 8835
0733754709/0799991888
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Sign&: .................................. Date ..............................................
Name: Hashim Mwaura (Nema L.E. No 2693)

PROPOONENT

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Nairobi, Kenya

Authorized Representative

Sign&: .................................. Date ..............................................
Name: ..........................................................................................
TABLE OF CONTENTS

LIST OF TABLES V
LIST OF FIGURES ............................................................................................................. V
LIST OF PLATES V
LIST OF ACRONYMS ......................................................................................................... VI

E. EXECUTIVE SUMMARY ................................................................................................. 1
   E.1 PROJECT INFORMATION .......................................................................................... 1
   E.2 PROJECT LOCATION, LAND OWNERSHIP AND SIZE ............................................ 1
   E.3 ENVIRONMENTAL AND SOCIAL SCREENING ......................................................... 1
   E.4 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK ........................................ 2
   E.5 HIGHLIGHTS OF STAKEHOLDER CONSULTATIONS ............................................ 2
      E.5.1 Public Consultations ......................................................................................... 2
   E.6 POTENTIAL PROJECT IMPACTS ............................................................................. 3
   E.7 MAIN FINDINGS ...................................................................................................... 9
   E.8 CONCLUSION ........................................................................................................... 10

CHAPTER 1: BACKGROUND INFORMATION ..................................................................... 1-1
   1.1 BACKGROUND INFORMATION .............................................................................. 1-1
   1.2 PROJECT JUSTIFICATION AND BENEFITS .......................................................... 1-1
   1.3 OBJECTIVES OF THE EIA STUDY REVIEW ............................................................ 1-1
   1.4 TERMS OF REFERENCE .......................................................................................... 1-2
   1.5 ENVIRONMENTAL AND SOCIAL SCREENING ....................................................... 1-2
   1.6 EIA ASSESSMENT METHODOLOGY ....................................................................... 1-3
   1.7 STUDY SCOPE ......................................................................................................... 1-4

CHAPTER 2: PROJECT DESCRIPTION ............................................................................... 2-1
   2.1 PROJECT LOCATION .................................................................................................. 2-1
   2.2 NAME OF PROJECT .................................................................................................. 2-2
   2.3 PROJECT PROPONENT ............................................................................................. 2-2
   2.4 PROJECT DESIGN ..................................................................................................... 2-2
   2.5 OBJECTIVE OF THE PROJECT ............................................................................... 2-2
   2.6 MAJOR CONSTRUCTION ACTIVITIES OF THE PROJECT ........................................ 2-3

PLATE 2-1: VIEW OF THE SITE ......................................................................................... 2-3
   2.7 PRE-CONSTRUCTION PHASE ACTIVITIES ................................................................ 2-3
   2.8 CONSTRUCTION PHASE .......................................................................................... 2-3
   2.9 OPERATION PHASE .................................................................................................. 2-4
   2.10 DECOMMISSIONING ACTIVITIES .......................................................................... 2-4
   2.11 CONSTRUCTION INPUTS ......................................................................................... 2-4

CHAPTER 3: BASELINE INFORMATION ............................................................................. 3-1
   3.1 INTRODUCTION ........................................................................................................ 3-1
   3.2 PHYSICAL ENVIRONMENT ...................................................................................... 3-1
      3.2.1 Climate .................................................................................................................. 3-1
      3.2.2 Physiography ....................................................................................................... 3-2
      3.2.3 Geology and soils ................................................................................................. 3-2
      3.2.4 Water resources .................................................................................................. 3-2
      3.2.5 Drainage and permeability .................................................................................. 3-2
   3.3 BIOLOGICAL ENVIRONMENT ................................................................................. 3-3
      3.4 Social Setup ............................................................................................................. 3-3
      3.4.1 Demography and Administration ....................................................................... 3-3

EIA Study report
3.4.2 Economic Status of Nairobi City County ................................................................. 3-4
3.4.3 Land Use and settlement Patterns ............................................................................. 3-5
3.5 Education ....................................................................................................................... 3-5
3.5.1 Literacy ...................................................................................................................... 3-5
3.5.2 Pre-school Education ................................................................................................. 3-5
3.5.3 Primary Education ..................................................................................................... 3-5
3.5.4 Secondary Education ................................................................................................. 3-6
3.5.1 Tertiary Education ...................................................................................................... 3-6
3.6 Transport and Communication ...................................................................................... 3-6
3.6.1 Road, Railways Networks and Airports ....................................................................... 3-6
3.6.2 Post and Telecommunication ...................................................................................... 3-7
3.6.3 Health Access ........................................................................................................... 3-7
3.6.4 Energy Access ........................................................................................................... 3-7
3.6.5 Housing ..................................................................................................................... 3-7
3.6.6 Markets ..................................................................................................................... 3-8
3.6.7 Solid waste management Facilities ............................................................................ 3-8
3.6.8 Water sources and access .......................................................................................... 3-8
3.6.9 Employment ............................................................................................................... 3-8

CHAPTER 4: PROJECT ALTERNATIVES ............................................................................ 4-1

4.1 PROJECT ALTERNATIVES ............................................................................................ 4-1
4.1.1 The “No-action” Alternative .................................................................................... 4-1
4.1.2 Re-location Alternative ............................................................................................ 4-2
4.1.3 Alternative Land-use ............................................................................................... 4-2
4.1.4 The Proposed Development as described in the EIA Report .................................... 4-3
4.1.5 Alternative materials and technology ..................................................................... 4-3

CHAPTER 5: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK ................................. 5-5

5.1 INTRODUCTION ............................................................................................................ 5-5
5.2 ENVIRONMENTAL POLICY ....................................................................................... 5-5
5.3 RELEVANT KENYA POLICIES .................................................................................. 5-5
5.3.1 Policy Paper on Environmental and Development (Sessional Paper No. 6 of 1999) .... 5-5
5.3.2 Physical Planning Policy ........................................................................................... 5-5
5.3.3 Public Health Policy ................................................................................................. 5-6
5.3.4 National Housing Policy of Kenya (Sessional Paper No. 3 of 2004) ......................... 5-6
5.3.5 The Kenya Vision 2030 ........................................................................................... 5-6
5.3.6 Nairobi Metro 2030 ................................................................................................. 5-6
5.3.7 Housing Finance Policy in Emerging Markets – The World Bank ............................ 5-7
5.4 INSTITUTIONAL ARRANGEMENTS ............................................................................ 5-7
5.5 INSTITUTIONAL FRAMEWORK .................................................................................. 5-7
5.5.1 National Environmental Management Authority (NEMA) ....................................... 5-8
5.5.2 Public Complaints Committee .................................................................................. 5-9
5.5.3 National Environment Action Plan Committee ......................................................... 5-9
5.5.4 Standards and Enforcement Review Committee ....................................................... 5-10
5.5.5 National Environmental Tribunal (NET) .................................................................. 5-10
5.5.6 National Environmental Council (NEC) ................................................................ 5-10
5.5.7 National Environmental Action Plan (NEAP) .......................................................... 5-11
5.6 LEGAL FRAMEWORK ................................................................................................ 5-11
5.6.1 The Environmental Management and Coordination Act, 1999 .................................. 5-11
5.6.2 The Environmental Impact (Assessment and Auditing) Regulations, 2003 ............... 5-11
5.6.3 Environmental Management and Coordination (Water Quality regulations), 2006 ... 5-12
5.6.4 Environmental Management and Coordination (Waste Management Regulations), 2006  5-12
CHAPTER 6: ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT

6.1 INTRODUCTION ...................................................... 6-1
6.2 DEFINITION AND CLASSIFICATION OF ENVIRONMENT IMPACT .............................................. 6-1
   6.2.1 Impact Significance ........................................... 6-1
   6.2.2 Impact Assessment and Scoring .................................. 6-2
6.3 ANTICIPATED POSITIVE IMPACTS ................................... 6-2
   6.3.1 Addressing Housing Challenge: .................................. 6-2
   6.3.2 Realization Nairobi Metro vision 2030: ............................... 6-3
   6.3.3 Employment opportunities: ...................................... 6-3
   6.3.4 Market for Construction Materials: ................................. 6-3
   6.3.5 Economic Growth: ............................................. 6-4
6.4 POTENTIAL NEGATIVE IMPACTS ...................................... 6-4
   6.4.1 Vegetation Clearing, Soil Erosion and Sedimentation .......... 6-4
   6.4.2 Air Quality .................................................. 6-5
   6.4.3 Excessive Vibration and Noise Pollution ......................... 6-5
   6.4.4 Wastes removals and disposal .................................... 6-6
   6.4.5 Public and Occupational Health and Safety Risks .................. 6-7
   6.4.6 Irresponsible social behavior HIV/AIDS prevalence and drug abuse within the project area 6-7
   6.4.7 Surface drainage wastewater, and water pollution/ contamination 6-8
   6.4.8 Water use and increasing demand .................................. 6-9
   6.4.9 Security and crime ............................................ 6-10
   6.4.10 Traffic snarl-ups .............................................. 6-10

CHAPTER 7: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN .......... 7-1

7.1 INTRODUCTION .......................................................... 7-1
7.2 MANAGEMENT PLAN PRINCIPLES ....................................... 7-1
7.3 SPECIFIC MANAGEMENT ISSUES ................................................................. 7-1
7.3.1 Management Responsibilities ............................................................... 7-1
7.3.2 Environmental Management Guidelines ............................................... 7-2
7.3.3 Environmental Monitoring and audits ................................................... 7-2
7.3.4 Decommissioning Process ..................................................................... 7-2
7.4 DECOMMISSIONING FLOW CHART ......................................................... 7-19

CHAPTER 8: PUBLIC CONSULTATION ............................................................. 8-1
8.1 INTRODUCTION .......................................................................................... 8-1
8.2 PUBLIC CONSULTATION OBJECTIVES .................................................. 8-1
8.3 PUBLIC CONSULTATION METHODOLOGY ............................................. 8-1
8.4 OUTCOMES OF CONSULTATIVE MEETING ........................................... 8-2
PLATE 8-1 PUBLIC PARTICIPATION AT DIFFERENT STAGES ...................... 8-3

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS ................................. 9-1
9.1 CONCLUSION ............................................................................................ 9-1
9.2 RECOMMENDATIONS .............................................................................. 9-1

REFERENCES .................................................................................................... 9-2
ANNEXES ........................................................................................................... 9-4

LIST OF TABLES
Table E.1: Summary of Potential Negative Impacts and Mitigation ...................... 4
Table 2-1 – Allocation of housing units .............................................................. 2-2
Table 3-1 Land Use in Nairobi City County ...................................................... 3-5
Table 6.1: Environment Impact Scoring and Rating Criteria .............................. 6-2
Table 7.1: Construction & Operation Phase: Environmental and Social Management and Monitoring Plan .............................................................. 3
Table 7.2: Decommissioning Phase: Environmental and Social Management and Monitoring Plan .............................................................. 7-18
Table 7.3: Decommissioning Flow Chart .......................................................... 7-19

LIST OF FIGURES
Figure 2-1: Aerial view of the project site ....................................................... 2-1

LIST OF PLATES
Plate 2-1: View of the Site ............................................................................... 2-3
Plate 8-1 public participation at different stages .............................................. 8-3
Plate 9-3 Site Characteristics .......................................................................... 9-3
### LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>CBOs</td>
<td>Community Based Organizations</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>ESIA</td>
<td>Environmental and Social Impact Assessment</td>
</tr>
<tr>
<td>EHS</td>
<td>Environment Health and Safety</td>
</tr>
<tr>
<td>ERC</td>
<td>Energy Regulatory Commission</td>
</tr>
<tr>
<td>ESMMP</td>
<td>Environmental &amp; Social Management and Monitoring Plan (ESMMP)</td>
</tr>
<tr>
<td>IUCN</td>
<td>International Union for Conservation of Nature</td>
</tr>
<tr>
<td>KEBS</td>
<td>Kenya Bureau of Standards</td>
</tr>
<tr>
<td>CG</td>
<td>County Government</td>
</tr>
<tr>
<td>NCG</td>
<td>Nairobi County Government</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Environment Management Authority</td>
</tr>
<tr>
<td>NCWSC</td>
<td>Nairobi City Water and Sewerage Company</td>
</tr>
<tr>
<td>WRA</td>
<td>Water Resources Authority</td>
</tr>
<tr>
<td>L.R. No.</td>
<td>Land reference Number</td>
</tr>
<tr>
<td>CCTV</td>
<td>Closed-circuit Television</td>
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<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>NCA</td>
<td>National Construction Authority</td>
</tr>
<tr>
<td>PAPs</td>
<td>Project Affected Persons</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
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E. EXECUTIVE SUMMARY

E.1 Project Information

The report presents findings of Environmental Impact Assessment (EIA) done by a team of environment experts for the construction of the proposed development of apartments on L.R No 209/5458 NAIROBI. The Environmental and Social Impact Assessment findings presented in this project Report provides an examination of issues considered important in fulfilling the requirements of a clean, sustainable and healthy environment during implementation of development projects within the country.

This project is one of the Government’s Big 4 agenda identified as ‘The National Affordable Housing Programme’ whose goal is to provide decent housing to its citizens at subsidized and affordable costs. The programmes target is to put up 500,000nr units in all counties across the country through Private Public Partnerships. Environmental Management and Coordination Act 1999 (Amended 2015) requires that Projects of such nature be subjected to an Environmental and Social Impact Assessment (ESIA). This helps in assessing potential Environment and Social Impacts likely to be triggered by the Project and therefore propose appropriate mitigation measures for impacts identified.

E.2 Project location, Land Ownership and Size

Bachelors/Jevanjee Estate is situated along Quarry Road and bounded by Ring Road Ngara, Kirima Market, and Muslim Girls Secondary School. It is located just opposite Kariokor Market served by the dual Carriageway of Ring Road that connects the area to Pangani & Muranga road/Thika Superhighway.

The Project is planned to be implemented on approximately 3.595 Ha at L.R No 209/5458 NAIROBI in Ngara area, Nairobi County. The land parcel is registered in the Names of Nairobi Bachelors Jevanjee Estates Ltd who are the proponents of the Project.

*see copy of Land title deed annex 1 of the ESIA

E.3 Environmental and Social Screening

According to the legal notice 150 of 16th June 2016, the L N 8/2003 EMCA 1999 (second schedule) was amended and Projects categorized as low risk, medium risk and High risk according to their potential impacts to the environment.

Screening of the proposed project was done and according to the classification described in the above legislation as “…Urban development including establishment of new housing estate developments exceeding one hundred housing units”, the project is categorized a high risk project. A scoping exercise was therefore done and acknowledged that Project’s potential impact on the natural environment and human environment are significant but can be addressed and mitigated as described in this ESIA.
E.4 Policy, Legal and Administrative Framework

The EIA study preparation was guided by the following main legal instruments to ensure that the investments conform to the sustainability requirements for projects

2. Water Act 2016
3. County Government Act no 17 of 2012
5. Physical Planning Act 1996 (286)
7. The Public Health Act (Cap.242)
8. Traffic Act 2012
10. The Land Registration Act, 2012
11. The Energy Act of 2019
13. The Standards Act Cap. 496
14. Public Roads and Roads of Access Act (Cap. 399)

E.5 Highlights of Stakeholder Consultations

E.5.1 Public Consultations

The main issues discussed during the meetings with stakeholder and PAPs are as summarized below:

- **Type of investment**: The type of development is proposed construction of twelve blocks of fourteen storeys of mixed use apartments, lettable commercial spaces, on plot L.R No. L.R No 209/5458 NAIROBI, comprising of Government social housing scheme allocated 65% of units and private, low-cost housing units that is allocated 35% of the units with a total of 1800 units and adequate parking slots (See attached drawings). It was noted that the proposed Project is in character with the surroundings; similar apartments have been established in the area and are currently occupied.

- **Project Affected Persons and other stakeholders**: The location of the project was initially inhabited by residents who relocated to pave way for this development. Desktop review within the coping exercise revealed that the Project Implementation Team (PIT) had been meeting with the PAPs in a bid to create awareness on the proposed project in the context of wider government initiatives and goals. Their issues were well captured in minutes and are addressed as per the agreements made during the meetings. Minutes of the meetings are appended to this report. The EIA process also facilitated engagements with the wider stakeholders including neighbours and nearby juakali businessmen.

- **Zoning Requirement**: The Project area falls under Zone 2 as per the Nairobi City Development Ordinances and Zones Guidelines that allows for development of
Commercial/Residential (High-rise Flats). Therefore the development is within the County guidelines.

- **Approved Designs and drawing:** The proponent has provided the designs and drawings for the proposed development from Nairobi County Government. The public consultation process will yield views regarding the project which were incorporated in the designs within the approval process.

- **ESIA Impacts:** The EIA has proposed mitigation measures to reduce negative impacts associated with the Project during construction of the proposed development and operation phases, these impacts include noise abatement, waste management, reduction of visual intrusion, reduction of soil erosion, prevention of accidents and health hazards and provision for restoration/reinstatement of infrastructure facilities that may be affected.

### E.6 Potential Project Impacts

The Project poses significant negative impacts to the environment. However, its envisaged positive impacts include;

**Anticipated Positive Impacts**

- **Addressing Housing Challenge:** The Project shall lead to improved accessibility to housing requirements of residents of not only Ngara but within the wider Nairobi County, nationally or even those from diaspora. This is a positive contribution to the government agenda of provision of affordable housing to the population in line with the Government’s Big Four agenda.

- **Realization Nairobi Metro vision 2030:** The project and connected infrastructure is directly linked to the vision 2030 of providing for affordable and decent living conditions to residents of Nairobi Metropolis.

- **Employment opportunities:** The project shall directly and indirectly result to creation of job opportunities both during construction and operation phases of the project also through, supplies, construction works, marketing and consultancy services.

- **Economic Growth:** The project shall directly lead to improved local micro economy of the society of the area within Nairobi County through provision of support services and resultant collection of taxes to the County and National Government.

**Negative Impacts**

The identified potential negative impacts are medium term, localized and can be mitigated as summarized on Table E-1 below.
Table E.1: Summary of Potential Negative Impacts and Mitigation

<table>
<thead>
<tr>
<th>S/No</th>
<th>Activity and Impact</th>
<th>Proposed Mitigation</th>
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</table>
| 1    | Statutory requirements  
   - Seeking approvals and permits from relevant bodies such as NEMA, DOSHS, WRA | - The Proponent shall ensure that all pertinent permits, certificates and licences have been obtained prior to any activities commencing on site and are strictly enforced/adhered to;  
- The Contractor shall maintain a database of all pertinent permits and licences required for the contract as a whole and for pertinent activities for the duration of the contract. |
| 2    | Site clearance and waste management | • Scoping exercise revealed that the site was already cleared of any existing buildings.  
- Relocate or reroute any infrastructure facilities within the site  
- Obtain license for vegetation clearing. Only cut down trees at the specific affected part of the site.  
| 3    | Vegetation Clearing, Soil Erosion and Sedimentation | ▪ Adopt selective de-vegetation that aims at clearing only the project site where necessary.  
▪ The proponent proposes to carry out landscaping of the area.  
▪ Unnecessary felling of the existing trees should be avoided.  
▪ Once the project lifespan ends, during decommissioning, the proponent shall replant the field with appropriate vegetative cover including indigenous trees.  
▪ Planting trees, flowers and other green measures |
| 4    | Air Quality Control  
[Increase in airborne/ air emissions (vehicular exhausts), paint emissions (Volatile Organic Compounds, VOC), and dust emission from paved areas.] | ▪ All construction machinery shall be maintained and serviced in accordance with the specifications  
▪ The removal of vegetation/topsoil shall be avoided until such time as clearance is required.  
▪ Vehicles delivering soil or dusty materials shall be covered to reduce spills and windblown dust.  
▪ Screening of the construction site to contain and arrest construction-related dust.  
▪ Dump working: Dust suppression with water-sprays during the construction phase on dusty areas. |
| 5    | Wastes removals and disposal | ▪ A site waste management plan should be prepared by the contractor prior to commencement of construction works. This should include designation of appropriate waste storage areas, collection and removal schedule and identification of approved disposal site;  
▪ The project proponent and contractor must ensure that |
<table>
<thead>
<tr>
<th>S/No</th>
<th>Activity and Impact</th>
<th>Proposed Mitigation</th>
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<tr>
<td></td>
<td>collection bins/ receptacles are placed at strategic locations within project site as collection centres to facilitate separation and sorting of various types of wastes.</td>
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<td>The waste shall be properly segregated and separated to encourage recycling of some useful waste materials i.e. some stone and concrete materials can be used as backfills.</td>
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<td>Contract a licensed waste handler to collect solid wastes which cannot be reused at the site.</td>
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<td>Adopt the 3R waste management approach, that is (reduce, reuse and recycle) whereby waste shall be segregated – plastics, glass, tins, papers, wood, metals etc. (later to be re-used or recycled).</td>
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<td>Avail colour coded waste bins for source waste sorting at the project site.</td>
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<td>Recycling non-woven fabrics and PE films into plastic particles to make some daily plastic products like plastic slippers, plastic desks and chairs.</td>
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<td>Occupational Health and Safety</td>
<td>• A well-stocked first aid kit shall be availed on site and shall be managed by qualified persons.</td>
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<td>• Nominate an environment, health and safety officer to oversee all construction activities during project implementation process.</td>
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<td>• Provide appropriate personal protective equipment (PPEs) to all site workers. These shall include; respirators, dust coats, aprons, safety boots, head gears, hand gloves, ear muffs etc.</td>
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<td>• Ensuring that the operational manuals are available and accessible for every equipment /machinery used at the site during construction and operation phases.</td>
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<td>• Proper maintenance of all machinery and equipment to prevent premature failure or possible accidents.</td>
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<td>• Ensuring all electrical equipment and machinery are properly guarded and grounded.</td>
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<td>• Only properly trained workmen to operate equipment or machinery and proper instructions on their safe operation provided.</td>
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<td>• Training programmes for temporary staff on how to safely handle construction equipment and machineries.</td>
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<td>• Install firefighting equipment e.g. Fire extinguishers.</td>
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<td>• Ensure all workers are conversant with basic fire safety techniques.</td>
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<td>• Ensure safe electrical installations of possibility exposed wires which can lead to short circuiting.</td>
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<tr>
<td>S/No</td>
<td>Activity andAssociated Impact</td>
<td>Proposed Mitigation</td>
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<td>• Provide emergency numbers at strategic points as well as adequate signage on fire action.</td>
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<td>• Various measures should be taken to reduce possible fire outbreak e.g. warning signs, insulating electric wires exposed, hire electrician to manage electrical works.</td>
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<td>• Provide containment of hazardous materials such as used oils, paints.</td>
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<td>• Provide adequate protective gears to construction workers.</td>
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<td>• Adherence to provisions of Occupational Safety and Health Act of 2007 and the rules formulated under it.</td>
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<td>• Use signage to warn staff and/ or visitors that are not involved in construction activities.</td>
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<td>• Restrict non-essential staff from the construction site.</td>
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<td>• Supervision of works shall be done regularly to ensure that safety conditions are met while any deviation from safety regulations is immediately reclaimed following the best practices regarding safety at work.</td>
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<td>• Develop evacuation procedures to handle emergency situations.</td>
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<td>• Speed controls where necessary within the construction site and its environs.</td>
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<td>• Establish a Health and Safety Plan (HASP) for civil works areas ensuring the working hours are controlled and that employees are not allowed to extend the working hours beyond an acceptable limit for purposes of gaining extra pay;</td>
</tr>
<tr>
<td></td>
<td>Noise and Excessive vibrations</td>
<td>• Limit the times of construction to daylight hours (8am-5pm).</td>
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<td></td>
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<td>• Erect signage to prohibit unnecessary hooting at the project site.</td>
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<td></td>
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<td>• Ensure that noise &amp; excessive vibration from construction activities are within permissible levels as per the provision of Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009. This includes among others adhering to permissible noise and vibration levels.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Construction work should strictly be undertaken between permissible time periods as stipulated in the second Schedule— Maximum Permissible Noise Levels for Construction Sites of EMCA(Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide PPEs such as ear muffs to the contractors.</td>
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<tr>
<td></td>
<td></td>
<td>• Carry out baseline noise monitoring within the area before, during and after the construction works.</td>
</tr>
<tr>
<td>S/No</td>
<td>Activity and Impact</td>
<td>Proposed Mitigation</td>
</tr>
<tr>
<td>------</td>
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</tr>
</tbody>
</table>
| 8    | Surface drainage wastewater, and water pollution/ contamination | - Acquire noise and excessive vibrations emission permit from NEMA when undertaking excessive noise and vibration emitting activities.  
- Ensure that hazardous materials are handled and stored in a good manner, to limit their movement into the environment.  
- Trenching during plumbing works should not interfere with the existing drainage channels.  
- Ensure that open stockpiles of construction materials are covered with tarpaulin or similar fabric during rainy season.  
- Removal of soil vegetative cover should be kept at minimum and should only be carried out with absolute necessity.  
- Stockpile of construction materials i.e. sand, ballast, stones etc. be placed away from drainage system.  
- Monitor the natural flow system during heavy rains and make improvements where necessary.  
- Clear any blocked drainage channels.  
- Clear all soil residues/debris after trenching works.  
- The proposed site for construction must be free from floods and should have adequate drainage to prevent effects of soil erosion and surface run-offs.  
- Provide containments to used oils and also construct a bund wall to the generator set room (if any).  
- Install grease trap or oil water separator.  
- During construction stage sanitary waste shall be managed though mobile toilets and if need be, temporary pit latrines shall be constructed connected to sewer line.  
- Establish drainage channels to ensure that surface runoff do not mix with effluent from the sanitary facilities.  
- Wastewater shall be managed through proper disposal into Nairobi City Water and Sewerage Company Limited’s sewer line serving the project area. |
| 9    | Water use and increasing demand | - During construction phase, use water economically to avoid wastage.  
- Conducting regular water system audits to identify and rectify any possible water leakages.  
- Used water can be sprinkled on the haulage road and dusty surfaces to reduce dust emissions.  
- Provide additional source of water to reduce pressure on the existing water source. E.g. through rainfall harvest, and borehole drilling.  
- Routine check-ups and monitoring of the drainage system to avoid leakages and blockages.  
- Construction of separate storm water and waste water |
<table>
<thead>
<tr>
<th>S/No</th>
<th>Activity and Impact</th>
<th>Proposed Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>drain.</td>
<td>• Implement water saving devices in the ablution block use e.g. dual flush toilets, automatic shut-off taps, etc.</td>
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<tr>
<td></td>
<td></td>
<td>• The designs have water reservoirs for storage.</td>
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<td></td>
<td></td>
<td>• Re-use or use recycled water for dust suppression</td>
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<tr>
<td></td>
<td></td>
<td>• Provide roof &amp; storm water harvesting facilities connected to underground water storage tanks</td>
</tr>
<tr>
<td>10</td>
<td>Irresponsible social behavior HIV/AIDS prevalence and drug abuse within the project area</td>
<td>• Conduct sensitization to the staff and community on drug abuse, irresponsible sexual behaviors, HIV and AIDS, stress management, and voluntary counseling and testing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Avail condom dispensers at the site to the construction staff and the latter occupants.</td>
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<tr>
<td></td>
<td></td>
<td>• Strengthen advocacy through awareness training in HIV/AIDS and other Sexually Transmitted Infections to the community members.</td>
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<tr>
<td></td>
<td></td>
<td>• Identify other players (local CBOs, NGOs, and government organizations) on HIV/AIDS for enhanced collaboration;</td>
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<tr>
<td></td>
<td></td>
<td>• Provide counseling and testing for HIV/AIDS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Prohibit smoking within the project site.</td>
</tr>
<tr>
<td>11</td>
<td>Security and Crime</td>
<td>• Sensitize construction workers, locals and security to be on the lookout on suspicious activities near the site.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Proper design incorporating lighting to enhance security.</td>
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<td></td>
<td></td>
<td>• Liaise with the administration units such as the police, chiefs and District Officers to provide regular surveillance and patrols to protect workers and the neighbourhood.</td>
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<tr>
<td></td>
<td></td>
<td>• Conduct sensitization campaigns for the public on risks related to construction sites.</td>
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<td></td>
<td></td>
<td>• Body search workers on entry, to avoid getting weapons on site and upon leaving site, ensure nothing is stolen.</td>
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<td></td>
<td></td>
<td>• Ensure only authorized personnel get to the premise.</td>
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<tr>
<td></td>
<td></td>
<td>• Ensure security alarms are installed.</td>
</tr>
<tr>
<td>12</td>
<td>Traffic snarl-up and Access to construction site</td>
<td>• Provide reflective road signs on both sides of the working area at a distance not less than 50m from the works.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hire traffic marshal to control movement of trucks, heavy equipment, and machineries.</td>
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<tr>
<td></td>
<td></td>
<td>• Planned deliveries of materials.</td>
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<tr>
<td></td>
<td></td>
<td>• Proper display of warning signs such as ‘Road works ahead’, ‘slow down’ among others.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide road diversions.</td>
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<tr>
<td></td>
<td></td>
<td>• Acquisition of traffic disruption permit from Traffic Police Authority.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expand the access road to accommodate both vehicular and non-vehicular traffic expected in the area.</td>
</tr>
</tbody>
</table>
### S/No Activity and Impact Proposed Mitigation

<table>
<thead>
<tr>
<th></th>
<th>Environmental Training and Awareness</th>
<th>Contractor will develop and implement a traffic management plan to mitigate against possible accidents. Ensure road safety measures for the construction vehicles to the extent possible by observing all traffic regulations in the Traffic Act 2012. The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of this EIA’s ESMP. The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this EMP in his costs and programming. An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project workers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Increased energy demand</td>
<td>Install meters for monitoring purposes. Use energy saving electricals such as LED-bulbs. Use solar energy especially during operation phase as per the Solar Water Heating Regulations, 2012. Sensitise workers and occupants on energy conservation.</td>
</tr>
<tr>
<td>14</td>
<td>Increased social conflict and security</td>
<td>Accommodate the views raised during stakeholder meetings. Increased economic activities – employment generation, income earnings and housing capital stock formation. Engage services of security guards. Install manned CCTV cameras. Post emergency and SOS numbers strategically throughout the project lifecycle. Encourage formation of community policing and formation of neighborhood associations eg “nyumba kumi.”</td>
</tr>
<tr>
<td>15</td>
<td>Contractor demobilization</td>
<td>The site is to be cleared of all construction materials, including litter prior to hand over. Fences, barriers and demarcations associated with the construction phase must be removed from the site. All areas designated as hazardous waste/material storage must be remedied before handing over.</td>
</tr>
</tbody>
</table>

### E.7 Main Findings

The project is to be implemented within an area that is already developed into residential establishment of similar nature. The study noted that the proposed development is not out of character with the surrounding environment, as there area is experiencing gradual conversion from residential to high-density mixed-use multi-dwellings and therefore not in conflict with
both human and natural environment in the area. Neighboring Pangani Estate is a good example where such development has been established.

The study noted that the area has sensitive social receptors such as schools and health facilities but with minimal environmentally sensitive ecosystems that are likely to be affected by the project. Therefore, the level of assessment and mitigation measures was limited to the factors discussed in chapter 6 & 7 of this study.

E.8 Conclusion

The categorization of the project is high-risk Project which implies that projects presents potentially negative impacts on the environment and on the social conditions of those concerned. These impacts are significant and are hardly reversible but mostly localized. This ESIA has proposed adequate mitigation measures against the impacts and emphasized on strict adherence and monitoring.

It is on the basis of these mitigation measures for the impacts identified in connection with the proposed project and the accumulated benefits that the ESIA team recommends a conditional EIA licence be issued for the project.
CHAPTER 1: BACKGROUND INFORMATION

1.1 Background Information

The report presents findings of Environmental Impact Assessment (EIA) done by a team of environment experts for the construction of the proposed development of mixed use apartments on L.R No 209/5458 NAIROBI. The Environmental Impact Assessment findings presented in this project Report provides an examination of issues considered important in fulfilling the requirements of a clean, sustainable and healthy environment during implementation of development projects within the country.

The Project is one of the Public Private Partnership flagship projects in the Provision for Affordable Housing under the “Big 4” agenda by the President. Environmental Management and Coordination Act 1999 reviewed in 2015 requires that Projects of such nature be subjected to an Environmental Impact Assessment, EIA helps in assessing potential Environment and Social Impacts likely to be triggered by the Project and therefore proposed appropriate mitigation measures for impacts identified.

1.2 Project Justification and Benefits

The specific Project objective is provision of affordable housing solution to residents of Nairobi County as envisaged in the Government’s Housing Pillar under the “Big 4” agenda. Below is a summary of anticipated project benefits

- **Addressing Housing Challenge:** The Project shall lead to improved accessibility to housing requirements of residents of highly populated area of Ngara area and the County at large. This is a positive contribution to the government agenda of provision of affordable housing to the population.

- **Realization Nairobi Metro vision 2030:** The project is directly linked to the vision 2030 of providing for affordable housing to residents of Nairobi County.

- **Employment opportunities:** The project shall directly result to creation of job opportunities both during construction and operation phases of the project also through tendering for professional consultancy services and construction works.

- **Economic Growth:** The project shall directly lead to improved local micro economy of the society of the area within Nairobi County.

1.3 Objectives of the EIA study Review

The objective of the EIA study review was to carry out a systematic examination of the present environmental situation within the project area to determine whether the proposed project will have adverse environmental and social impacts to the surrounding area. The assessment included collection and analysis of environmental baseline data, identification of impacts (both positive and negative) analyses and evaluation of impacts, formulation of mitigation measures for significant negative impacts, analysis of project alternatives and
development of environmental management and monitoring plans.

Specifically, the assessment aimed at achieving the following objectives:

- To determine the compatibility of the proposed development with the neighbouring land uses.
- To identify and evaluate the significant environmental and social impacts of the proposed project.
- To assess and analyse the environmental and social costs and benefits associated with the proposed project.
- To incorporate environmental and social management plans and monitoring mechanisms during implementation, operation and decommissioning phases of the project.
- To incorporate stakeholder consultations into the environmental and social management process.

1.4 Terms of Reference

The proponent approached the NEMA registered Firm of Experts to carry out thorough environmental and social investigations for the proposed development with a view of submitting the report to NEMA. The experts conducted a scoping exercise to determine the range of issues to be addressed in the EIA study, identify the significant issues, which are related to the proposed project, so as to focus the EIA on the key issues, while ensuring that indirect and secondary effects are not overlooked and eliminating irrelevant impacts.

The Experts developed the TORs and Submitted to NEMA as per EIA/EA 2002 guidelines. TORs in this project sought to:

- Describe the proposed project and Identify key issues of concern.
- Ensure focus on key issues during the EIA study.
- Facilitate and review focused specialist studies.
- Determine the assessment methods to be used.
- Identify all affected persons.
- Provide an opportunity for consultation and public participation.
- Facilitate identification of alternatives.
- Facilitate early agreement on contentious issues and embed these in the EMMP.
- Review policy, legal and administrative framework.

1.5 Environmental and Social Screening

The EIA team undertook initial preliminary review of the project site within the month of January 2020 and late December 2019 so as to appreciate the project impact on both the human and natural environment. This process was guided by EIA/EA regulation 2003 which requires that environmental screening should be systematic study conducted to determine whether or not a programme, activity or project will have any adverse impacts on the environment as stipulated in Section 58 of the Act.
The screening process determination was based on the type and scale of any negative consequences or risks that may arise from the planned project (environmental/social impacts), potential for reducing greenhouse gas emissions and possible climate change impacts on the project that may impair the achievement of objectives.

The screening/scoping process identified the below listed findings.

a. The project investment shall result to significant impacts on both social and biological environment which can be mitigated appropriately. The proposed project is in harmony with the environment of the surrounding area which is already a residential area with no listed sensitive environment ecosystems.

b. Desktop review in the scoping process revealed that the site had once been occupied by residents who had been renting the old and dilapidated houses from the Nairobi County Government. This means that the project results to significant interference to people’s livelihood as there were some 80 Project Affected Persons (PAPs) who were relocated to pave way for the project commissioning.

According to previous stakeholders meeting, the residents agreed to relocate on condition that they are extended some stipends to enable them rent elsewhere for a period of two years that the project shall be complete. Upon completion, they put a condition and was agreed that they be given the first priority to purchase the units at the set terms.

Available documents show that they were compensated in the early days within the month of December 2019 as agreed in the meetings. The mode of compensations was via cash (cheques) as agreed.

c. The categorization of the project is a High risk Project which implies that projects potentially negative impact on the environment and on the social conditions is severe, hardly reversible but localized.

1.6 EIA Assessment Methodology

ESIA assessment adopted the standard environmental and social impact structure described in the Environmental (Impact Assessment and Audit) Regulations 2003. Specific tasks undertaken during the assessment include:

Task 1: Desktop review of available literature which included:
- Technical designs, drawings and specifications for the project
- Project feasibility report
- Traffic impact assessment report
- Geotechnical report
- Agreements made between the PAPs and the developer
- Previous consultations with the PAPs
- Previous stakeholders consultation documents and meetings
• Relevant legal instrument regarding construction of such nature

Task 2: Stakeholder consultation through one-on-one interviews of targeted and randomized sample population of the neighboring residents and businesses within the project area. Consultations were also made between the environmental experts and the proponent.

Task 3: Identification of relevant government institutions and their responsibility in ensuring that the project is implemented within the current institutional framework including review of relevant legal and policy issues relevant to the Environmental and Social Safeguards Requirement by Government of Kenya. National Environment Management Authority (NEMA) and Nairobi County Government were identified.

Task 4: The task involved identification, collection and analysis of environmental baseline data, identification of impacts; analyses and evaluation of impacts; formulation of mitigation measures for significant negative impacts; development and analysis of project alternatives, and development of environmental/social management and monitoring plans.

1.7 Study Scope

The study has been conducted to evaluate the potential and foreseeable impacts of the proposed project. The physical scope is limited to the proposed site, material sources and disposal areas and the immediate environment that may be affected by or may affect the proposed project.

Any potential impacts, (localized or extended) are also evaluated as required by EMCA 1999; Environmental (Impact assessment and Audit) Regulations 2003 This Report includes an assessment of impacts of the proposed site and its environs with reference to the following:
• A review of policy, legal and administrative framework
• Description of the proposed project
• Review of the baseline information
• Assessment of the potential environmental and social impacts
• Proposition of project alternatives including no project option
• Development of potential mitigative measures
• Stakeholder Consultations
• Environmental Management and Monitoring plan for project construction and implementation
CHAPTER 2: PROJECT DESCRIPTION

2.1 Project location

Bachelors is situated along Quarry Road and bounded by Ring Road Ngara, Kirima Market, and Muslim Girls Secondary School. It is located just opposite Kariokor Market served by the dual Carriageway of Ring Road that connects the area to Pangani & Muranga road/Thika Superhighway.

The major economic activities are centered towards small-scale (Jua Kali) businesses especially in the retail markets, where groceries, second-hand merchandise are sold in semi-permanent sheds by hawkers. There are also numerous shops and retail outlets selling a variety of products, in addition to garages and motor vehicle spare parts shops. The area also has commercial zone is mostly on Park Road and Ngara Road, Desai Road and Muranga Road with office blocks like Ngara Plaza, Enkai Plaza, Aqua Office Suites, among others.

The Project area falls under Zone 2 as per the Nairobi City Development Ordinances and Zones Guidelines that allows for development of Commercial. There are sensitive receptors such as schools, churches, mosques and hospitals outside the boundaries of the site.

Figure 2-1: Aerial view of the project site
Source: Google earth
2.2 Name of Project
Proposed development of mixed use apartments on L.R No 209/5458 NAIROBI along Quarry Rd. at Parkroad/Ngara area.

2.3 Project Proponent
Nairobi Bachelors Jeevanjee Estates Ltd of P.O. BOX 47215-00100, NAIROBI

2.4 Project Design
The proposed project is part of the Government’s effort to provide low cost housing for its citizens. Therefore, the project as conceptualized will comprise Government social housing scheme allocated 65% of units and private, low-cost housing units that is allocated 35% of the units. The proposed project will be situated on an 8.87 Acre piece of land on plot L.R No. L.R No 209/5458 NAIROBI with a total of 1,800 units as follows:

- 12nr block of flats, of which 7nr are social housing, 4nr blocks market type low-cost housing and 1nr commercial block.
- Each of these flats will have ground floor and 14nr floors high.

The design has presented a mixture of one, two and three bedroom units as follows:

- Social Housing will consist of 117 units one-bedroom 585 units two-bedroom and 468 units 3 bedroom, a mix that totals 1,170 representing 65% of the project housing; and

- Private affordable housing will consist of a mixture of 378 units two-bedroom and 252 units three bedrooms. That gives a total of 630 units representing 35% of the project housing. This is tabulated below

<table>
<thead>
<tr>
<th>Category</th>
<th>Typology</th>
<th>Units</th>
<th>Sub Total</th>
<th>% Mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Housing (Type A)</td>
<td>1 Bedroom Type A</td>
<td>117</td>
<td>1,170</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>2 Bedroom Type A</td>
<td>585</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Bedroom Type A</td>
<td>468</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordable Housing (Type B)</td>
<td>2 Bedroom Type B</td>
<td>378</td>
<td>630</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>3 Bedroom Type B</td>
<td>252</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>1,800</td>
<td>1,800</td>
<td>100%</td>
</tr>
</tbody>
</table>

The blocks once complete will be connected to the NCWSC sewer, electricity sourced from Kenya power mains and complemented by solar energy. All the blocks will have a “Light well” allowing natural light to flow in the building through skylights & voids into the building helping it to create an sense of natural lighting in the circulation spaces providing a breakthrough in the long commonplace corridor as well as having solar energy saving.

2.5 Objective of the Project
The overall project objective is provision of affordable housing solution to residents of Nairobi County area as envisaged in the Government’s Housing Pillar under the “Big 4” agenda.

*Annex 2 of this EIA present the architectural drawings prepared for the Project*
2.6 Major Construction activities of the Project

The parcel of land had already been cleared of any vegetation and all previous inhabitants had already relocated at the time of this study. All the salvageable materials had already been cleared save for few areas. There was Kenya Power infrastructure that still needed to be moved for the site to be ready for construction activities.

Plate 2-1: View of the Site

![Image of the site]

Source: Field Visit, January 2020

The construction activities shall involve four phases namely pre construction, construction, operational and decommissioning.

2.7 Pre-construction phase activities:

- Due diligence activities, preparation of architectural / structural drawings and submission to relevant lead agencies.
- Seeking relevant approvals for borehole drilling, conducting a geotechnical and traffic survey of the area for this project.
- Determining the resources required and available such as labour, electricity, construction water and welfare facilities for workers.
- Preparation of an ESIA Study report for submission to NEMA

2.8 Construction Phase

This will entail civil, structural and electrical engineering works such as excavation and foundation works, masonry, concrete work and related activities, structural walling works, electrical and mechanical works, landscaping, storm water and drainage construction, laying of the pavement blocks, government inspection and public health occupation certificate issued.

The products will be a total of 1800 units with parking slots that will be a mixture of Affordable Housing and Government's Social Housing units, retail and commercial offices, recreational facilities and other amenities. By products include drums that can be used to store water and soils generated during excavation that can be used elsewhere in the project site.
Wastes include material offcuts and non-conforming products that will be collected by suppliers for recycling, e-wastes, packaging materials and other inorganic wastes. The proponent will engage licensed waste handlers for both hazardous and non-hazardous waste as appropriate. Liquid waste generated within the project will be channeled to the existing sewer while storm water will be channeled to the rehabilitated and to be constructed public roads storm water drains.

2.9 Operation Phase
This shall comprise of allocating the units to paid up owners/tenants for occupation. Different units will be occupied for different activities as per the designs. There will be residents, commercial/retail spaces, education and recreation facilities and property management.

All liquid waste will be channeled to the NCWSC Ltd sewerage network. Solid waste generated is expected to be comprised of majorly the municipal waste. This waste is expected to be picked by already registered handlers operating within this area.

2.10 Decommissioning Activities
This phase will entail winding up the project at the end of life within the project life cycle. This will pave way for a different development as guided by the needs in the future. The proponent at that time will prepare a decommissioning plan that comprises of social and environmental safeguards.

2.11 Construction Inputs
Materials to be used are quarry stone, sand, cement, ballast gravel, steel bars, reinforced concrete, glass, plastic ceramic fixtures, mechanical and electrical installations. These will be sourced from reputable suppliers and ensure they conform to KEBS specifications.

Machines to be used include earth moving equipment, material handling equipment, construction equipment and Engineering vehicles. All machines will conform to KEBS specifications as well as undergo statutory inspections, where required. The proponent will ensure they are well serviced and operated by qualified staff.

Both skilled and non-skilled labour force will be required as necessary throughout the construction period. The contractor will adhere to all employment regulations and will put in place a labour management plan. Occupational welfare provisions will be adhered by the contractor such as drinking water, accommodation for clothing and items not used during working hours, first aid facilities/sick bay and safe shelter during rainy weather.

Other resources include water and electricity (power). Water will be supplied from boreholes that will be drilled. Wholesome drinking water will be supplied from NCWSC. Electricity will be supplied by the Kenya Power Company with generators serving backups during power outage.
CHAPTER 3: BASELINE INFORMATION

This Chapter describes the existing climate, water, and geological characteristics, biological, socio-economic environment, aesthetics and cultural resources at the proposed project location. The description provides the baseline against which impacts of the project will be determined.

3.1 Introduction

The team conducted reconnaissance and field visits to the proposed project site and surrounding environment to establish actual baseline as well as verification of facts stated in project designs and consult the stakeholders. This established the nature of the environmental setting around the proposed site (observations were focused on the physical characteristics of the area including the biological environment), existing infrastructure, economic and social set up of the neighbors whose normal daily activities will likely be impacted by the implementation of the proposed project.

Site visit to the project location was conducted in the month of January 2020 and late December 2019. Environmental conditions existing in the project area were explored and documented to provide the baseline data. The possible impacts of the project’s activities were assessed against the documented baseline survey.

3.2 Physical Environment

This section analyzes the environmental characteristic of the project area with an understanding that physical environmental characteristics are not localized, therefore the description shall be for the entire Constituency as retrieved from Literature review. The sub-sections below describe the physical, biophysical, social and cultural environment of the project area.

3.2.1 Climate

The County has a fairly cool climate resulting from its high altitudes of 1,795 metres (5,889 ft.) above sea level. Temperature ranges from a low of 10°C to a high of 29°C. It has a bi-modal rainfall pattern. The long rains season fall between March and May with a mean rainfall of 899 millimeters (mm) while the short rains season falls between October and December with a mean rainfall of 638 mm. The mean annual rainfall is 786.5 mm.

The relative humidity typically ranges from 30% (comfortable) to 98% (very humid) over the course of the year, rarely dropping below 24% (dry) and reaching as high as 100% (very humid). The air is driest around February 12, at which time the relative humidity drops below 33% (comfortable) three days out of four; it is most humid around April 11, exceeding 98% (very humid) three days out of four.

Over the course of the year typical wind speeds vary from 0 m/s to 6 m/s (calm to moderate breeze), rarely exceeding 7 m/s (moderate breeze).

The highest average wind speed of 3 m/s (light breeze) occurs around February 15, at which time the average daily maximum wind speed is 6 m/s (moderate breeze).
The lowest average wind speed of 1 m/s (light air) occurs around June 27, at which time the average daily maximum wind speed is 3 m/s (light breeze). The average daily temperatures range from 29˚C in the dry season to 24˚C during the rest of the year. The mean annual temperature is 17˚C and mean daily maximum and minimum are 23˚C and 12˚C respectively. The average annual rainfall is 875mm, with variation range of 500-1500mm.

3.2.2  **Physiography**  
The Area of study falls under the Kenyan highlands in Kiambu bordering Nairobi County on the North and Athi river plains to the south east with the project area located predominantly Grey Tuff rocks overlaid by shallow layers of black cotton soil, reddish lean clay soils and outcrops of gravel murrum in some areas. The site is generally flat but has a natural slope towards the Nairobi River to the south. The area is built up with poor drainage system. The site is located on the fringes of the plain which is characterised by low rainfall and nearly semi-arid with warm conditions throughout the year.

3.2.3  **Geology and soils**  
Nairobi is close to the eastern border of the Rift Valley and is on a large depression filled with volcanic rocks and sediments of Cainozoic times, which lie on basement complex rocks. In earlier times volcanic activities dominated Nairobi area. The volcanic rocks deposited by the solidification of flowing lavas (Nairobi phonolites) have gentle slope flowing eastwards from the Rift valley. Below the phonolites are series of sediments (Upper Athi), which is underlain by Lower Athi series. Below the Lower Athi are the Kapiti Phonolites lying on the oldest rock in the country - the basement rocks, old metamorphic rocks of sedimentary origin.

The main soil type in the Project area is black cotton soil characterized by fair water retention capability with very low permeability.

3.2.4  **Water resources**  
Surface water is fresh water on earth’s surface in streams, rivers, lakes, ponds, reservoirs and wetlands. Surface waters are replenished by the runoff of precipitation from land and are therefore considered a renewable resource although finite in nature. Generally, Nairobi faces water acute water shortage due to low and unreliable rainfall, limited permanent water resources and pollution of water sources. Natural water resources in the city comprise rivers all of which are heavily polluted. There are no surface water resources near the site.

3.2.5  **Drainage and permeability**  
Nairobi City County and its environs are in the Athi Drainage Basin and the drainage is mainly West to East. The perennial rivers include Ngong River in the South, Nairobi River in the middle and Mathare River in the North.

Nairobi River, the main river of the Nairobi River Basin, starts from the Ondiri swamp in Kikuyu. The river meets its major tributary, Kirichwa River at Museum Hill and flows towards Arboretum it flows through South of Nairobi Central Business District [CBD] and runs to Eastlands - Outer
Ring Road, where it passes near Kamunde Road and Cardinal Otunga Road at Kariobangi roundabout.

The site is characterized with poor drainage which is greatly facilitated by the site being straddled by roads and adjacent buildings both which are higher in elevation that the lowest point at the site on the one hand. The topography and the presence of black clay soil which has a fair water retention capability, on the other hand the tuff rocks below this soil is of very low permeability allowing very low water seepage to the lower profiles. The conditions therefore contribute to the stagnation of flood waters before naturally draining and result in subsequent higher weathering of the rock below.

3.3 Biological Environment

a) Flora and Fauna

There is no wildlife, forest or biodiversity of conservation value in the vicinity. The project does not trigger any need for protection measures for the would-be habitat for small insects and rodents family on the proposed parcel of land. Bird species were also observed but none of the species have been identified as being endangered as per the IUCN Red List of threatened species.

Fragments of the natural vegetation of the site and its environs are a few scattered trees and shrubs as well as grass. The site is characterised with poor vegetative cover comprising of patches of grass and trees. The poor drainage system helps maintain natural moisture content of the soil. The proponent will endeavor to enhance the aesthetics of the area by way of landscaping during the construction period of the project. The high order plant species will in turn be a habitat for birds and insects.

b) Protected areas

The protected areas in Nairobi include the Nairobi National Park, City Park and four forest reserves: Karura Forest, Ngong Road Forest, Ololua Forest and the Nairobi Arboretum. The most famous park in Nairobi is Uhuru Park which borders the Central Business District and Upper Hill. The closest protected area is the Nairobi National Park, some 20 KM away.

3.4 Social Setup

3.4.1 Demography and Administration

According to the 2019 population census report, Nairobi City County has a population size of about 4,556,381 of which 2,192,452 are males and 2,204,376 are females living in 1,506,888 households. The County has a population density of 6,247 people per Km². The population in the proposed project area, that falls under the Starehe Sub County is 210,423 and has a population density of 10,205 people per Km².
3.4.2 Economic Status of Nairobi City County

Nairobi City County is the main commercial center of the country. It hosts the country’s largest industrial center which accounts for some 20% of the Gross Domestic Product (GDP). The county is home to major industries which accounts for about 80% of the total industries in the country. This offers a wide range of employment opportunity for the people within and outside the County. The various industries play a significant role in employment creation. There are 2061 industries in Nairobi City County with 422 being in manufacturing and the number is expected to grow even more as demand for manufactured goods and commodities continue to increase. Most of these industries are located in Industrial area, Kariobangi and Baba Ndogo areas.

The principal products from these industries include processed food, beer, vehicles, soaps, construction material, engineering, textiles, and chemicals. Areas around Nairobi are prime agricultural lands. The principal food crops grown in the county are maize and beans though mainly on a small-scale basis especially in Njiru, Langata and Kasarani. Other crops include sweet and Irish potatoes, sorghum, cassava, kales, cassava and fruits. High value crops such as onion, tomato, Swiss chard and coffee, are also produced by small-scale farmers. Most of these crops are meant for consumption by the farming households while the surplus is sold to earn supplementary income.

The County is also a major center of tourism in East Africa Region. and its relative proximity to many tourist attractions both in Kenya and East Africa makes it an asset of great importance in the tourism sector. As the capital City and commercial centre, it attracts many businessmen and leisure tourists. This is partly because the Jomo Kenyatta International Airport (JKIA) the main point of entry to Kenya by air is located in the County. Some of the major tourist attractions in the county include The Nairobi National Park, The Nairobi Safari Walk and The Nairobi National Museum which houses a large collection of artifacts portraying Kenya’s rich heritage through history, nature, culture and contemporary art. Other important museums include Nairobi Gallery and the Karen Blixen Museum.

The tourism sector is supported by a number of world class hotels and restaurants together with excellent conference facilities. There exist fifteen 5-star hotels and twelve 4-star hotels with a combined bed capacity of 5,700 beds. Some of the major hotels in the County include: The Stanley, Laico Regency, Inter-continental, Hilton, Ole Sereni, Oakwood, Windsor, Panari, Hotel La Mada, Fairmont the Norfolk, Eka hotel, Safari park, Nairobi Safari Club, Serena and Boma Hotel and Spa.

Nairobi City County being the host of the country’s capital City has the highest concentration of financial institutions. There are 43 Commercial banks with a network of 353 branches that operate in different parts of the County with the City centre having the highest concentration. The County has 94 Forex Bureaus and 49 Microfinance Institutions (MFIs) with 8 of the MFIs being licensed as deposit taking.

In securities and investment banking, the County boasts of the vibrant Nairobi Securities Exchange which is supported by 8 licensed stockbrokers and 11 investment banks. In addition to this there are 18 investment advisers, 19 fund management institutions. There are also 16 approved collective investment schemes that deal with equity funds, money markets, balanced
funds, retirement funds and fixed income funds, among others. The huge network of financial institutions coupled with highly skilled personnel makes the County a regional hub in financial services.

3.4.3 Land Use and settlement Patterns

Nairobi City County has a total area of 696.3 Km². Land use within Nairobi City County is divided into categories namely residential, industrial/commercial, infrastructural, recreational, water bodies and riverine, urban agriculture, open lands, others (including protected areas). This is illustrated in the table below.

Table 3-1 Land Use in Nairobi City County

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>Area (Km²)</th>
<th>Cover (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential areas</td>
<td>175.6</td>
<td>25.22</td>
</tr>
<tr>
<td>Industrial/Commercial</td>
<td>31.8</td>
<td>4.57</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>15.9</td>
<td>2.28</td>
</tr>
<tr>
<td>Recreation</td>
<td>12</td>
<td>1.72</td>
</tr>
<tr>
<td>Water bodies and Riverine Areas</td>
<td>11.8</td>
<td>1.69</td>
</tr>
<tr>
<td>Urban Agriculture</td>
<td>96.8</td>
<td>13.9</td>
</tr>
<tr>
<td>Open Lands</td>
<td>198.8</td>
<td>28.55</td>
</tr>
<tr>
<td>Others (including protected areas)</td>
<td>153.6</td>
<td>22.06</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>693.3</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

3.5 Education

3.5.1 Literacy

The County has a total of 5,015 adult literacy centers where enrolment for male learners is 2,627 and 2,388 female learners. On literacy level, 96.1% of the population can read and write while 2.8% of the population cannot read and write.

3.5.2 Pre-school Education

The County has 2,906 ECD centers with a total of 8,470 ECD teachers. The teacher pupil ratio in the pre-primary school is 1:34 in 2016. The total enrolment in the ECD is 292,126. The pre-primary retention rate is 99.8% with a drop-out rate of 0.2% while the transition rate is 98%. Starehe Day Nursery school is found along the proposed Project.

3.5.3 Primary Education

The County has 1,235 primary schools with 7,741 teachers. The teacher pupil ratio in the primary schools is 1:55.5. The total enrolment is 429,280 with 207,056 boys while that of girls is 222,224. The gross enrolment is 51.8% while the net enrolment is 44.9%. Dropout rate stands at 3.6%. The average years of attendance for primary school are 8 years while the retention rate is 96.4%. Transition rate to secondary is at 65.7%.

The primary schools along the project include Parkroad and Pumwani primary
3.5.4 Secondary Education

Nairobi City County hosts some of the old schools in the country like Starehe Boys Center, Alliance High School and Pangani Girls High School. The County has 319 secondary schools with 2,359 teachers. The teacher pupil ratio is 1:22. The total enrolment is 49,728 with 26,755 boys and 22,973 girls. The gross enrolment rate is at 35.6% while the net enrolment is 25.8%. The dropout rate is 5.5%; completion rate is 91.8% while the retention rate is 94.6%.

Some of the secondary schools along the project area includes Muslim Girls’ Secondary school.

3.5.1 Tertiary Education

Nairobi City County hosts two public universities, that is, The University of Nairobi and Technical University of Kenya (TUK) with University of Nairobi(UoN) being the oldest public university in the country. There are 10 private universities and 16 university colleges and campuses operated by both public and private universities in the County. Most of the campuses are located within the Central Business District (CBD). In addition, the County has 237 science and technology institutes as at 2012.

3.6 Transport and Communication

3.6.1 Road, Railways Networks and Airports

The total road network covers 553.7 Km: 423 Km are of bitumen standard while 54 Km and 76.7 Km are gravel and earth roads respectively. The current poor state of road network is a great impediment to socio-economic growth leading to high production costs and low productivity. The completion of Thika Super highway, Outer ring road, by-passes and missing links within the County has helped in reducing traffic congestion.

The County has a railway network of 298 Km and a total of 10 functional railway stations which are: Embakasi, Makadara, and Nairobi main terminal, Dandora, Githurai, Kahawa, Kibera, Dagoretti, JKIA and Syokimau. The establishment of Makadara and Imara Daima railway stations and expansion of Nairobi platform has helped to improve public transportation in Nairobi for socio-economic development.

Nairobi City County hosts Jomo Kenyatta International Airport (JKIA) which is the biggest Airport in East and Central Africa, and is the focal point for major aviation activity in the region. Its importance as an aviation Centre makes it the pacesetter for other airports in the region. JKIA, located 18 kilometers to the East of Nairobi City centre, is served by 49 scheduled airlines. JKIA has direct flight connections to Europe, the Middle East, Far East and the rest of Africa. JKIA has five cargo facilities with a capacity to handle 200,000 tonnes of cargo annually, and an animal holding facility which occupies 4,318.95 square feet. The Airport has a runway measuring 4,117m long and 45m wide on 4,472.2ha of land.
Wilson Airport is the second airport in the County. It has two runways one that is 1,463m long and 24m wide while the other is 1,558m by 24m with displaced threshold giving a landing distance of 1,350m.

3.6.2 Post and Telecommunication

Posts and telecommunication sub-sector has experienced mixed growth in the recent past. While the County has 35 post office branches, the growth of postal services has rather been declining due to increase in mobile telephony. Mobile telephony has the highest coverage in Nairobi compared to other parts of the country with over 95% of the inhabitants having access to mobile communication. The players engaged in mobile telecommunication include: Safaricom, Orange and Airtel while those in mailing services include Kenya Postal Corporation, Group 4 Securities (G4S), Direct Handling Limited (DHL), Wells Fargo Ltd among others.

3.6.3 Health Access

The County hosts 16 Sub-County hospitals, 9 mission hospitals, 32 private hospitals, 15 nursing homes, 38 public health centres as well as 45 private health centres, 30 public dispensaries, 84 private clinics and 22 public clinics. Kenyatta National Hospital (KNH), a Level 5 Hospital, is the major referral hospital in the County. It has a total bed capacity of 1,800. The doctor patient ratio stands at 1:7,816. Other medical facilities close to the project site include: Karen Hospital, Karen Surgery and Health Center and the Nairobi Hospital and Outpatient Center.

The most prevalent disease is malaria at 39% of the cases; while diarrhoea follows with 16.3%. The prevalence of both flu and respiratory diseases is 15.5%, while intestinal worm prevalence is 14%. There are a few health facilities along the project area that includes Gurunanak hospital among others.

3.6.4 Energy Access

The main sources of energy in Nairobi County are electricity, solar, LPG, biogas paraffin, charcoal and firewood. Lack of access to clean sources of energy is a major impediment to development through health related complications such as increased respiratory infections and air pollution. The type of cooking fuel used by households is related to the socio-economic status of households/individuals. High level energy sources are cleaner but cost more and are used by households with higher levels of income compared with simpler sources of fuel, mainly firewood, which are mainly used by households with a lower socio-economic profile. For instance, 63.2% of the population use paraffin as cooking fuel. Other sources of energy for cooking include LPG gas (20.2%), charcoal (10.5%) and firewood (1.8%). About 68.2% of households use electricity as a means of lighting 28.8% use paraffin while 2.9% and 1.7% use grass and dry cells respectively. About 72% of households have access to electricity and the city consumes a total of 50% of National power generated annually.

3.6.5 Housing

The county is characterized by insufficient supply of affordable and decent housing with is more severe for low and middle income earners. Nairobi County has an annual housing demand of 150,000 to 200,000 housing units annually yet only about 15,000 development applications
were submitted in 2013 (World Bank 2016). More than 48% of the supply is for upper middle income, 35% for high income and only 2% for low income despite having the greatest housing need. The shortfall of housing supply for the low income is met through the proliferation of slums and informal settlements. Over 60% of the residents in Nairobi live in informal settlements. Nairobi County has tried to supplement housing supply by providing rental houses-17,000 housing units, although they are old and most are in deplorable conditions.

3.6.6 Markets

Nairobi County is a major trading centre. It provides a conducive environment for doing businesses by both locals and international communities. Majority of Nairobi residents especially middle earners get their income from businesses. There are various types of markets namely; open air markets, self-constructed markets, development tenant purchase markets, rental markets, hawker markets and wholesale markets. The Gikomba market is Kenya’s largest informal market. It offers affordable second hand clothing, furniture, accessories, fresh produce and processed materials. Another open air market is Maasai market situated on Taifa road and it is a place to shop for all sorts of jewellery, fashion, ornaments and paintings. Other markets are Toi markets, city market, Muthurwa market, Githurai market among others. Kirima and Kariorkor Markets are found along the proposed project area.

3.6.7 Solid waste management Facilities

Major challenges facing Nairobi County with respect to Solid Waste Management include management of waste collection and disposal. Identification and maintenance of final disposal sites will be a critical concern in the immediate term. Nairobi County generates over 2400 tons of garbage per day projected to be 3200 tons per day by year 2022. Under the current scenario only about 60% of generated waste ends up to the final disposal. Approximately 10% of generated waste is recycled with the rest ending up in rivers and other undesignated places. Electronic and Hazardous waste though not the mandate of sector has been of recent found its way to Dandora dumpsite. There are three main actors involved in waste collection and transportation. These include the County own fleet, hired contractors and the Private Service Providers (PSPs). The CBOs and youth groups are also involved but in a lower capacity.

3.6.8 Water sources and access

The main sources of water for the residents in Nairobi County are from Sasumua Dam in Nyandarua, Kikuyu Springs, Ruiru Dam, Thika Dam and Ngathu water works. Although Nairobi River is permanent, its water is unsafe for human consumption. There are residents that use borehole water, water kiosks especially those in slums, wells and roof catchments. Over 80% of the residents have access to piped water. On average, 52.5% and 24.7% of the population takes 0 and 1-4 minutes respectively to fetch water. Only 0.9 per cent of the population takes 30-59 minutes to nearest water point.

3.6.9 Employment

Employment is a major source of income and an important determinant of social and economic outcomes. Households that are most affected by unemployment are more often poor
households. Urban poverty and labour force participation are strongly related because earnings in the labour market are the main source of income for urban dwellers. However, participation in the labour market does not guarantee being above the poverty line. The “working poor” account for a substantial proportion of all the poor in Nairobi. This reflects in part the fact that the poor are employed in low productivity industries, including the informal sector.

The large segment of labour force in Nairobi is self-employed in the informal sector of about 1,548,100. This is 3.5 times those in wage employment. The level of unemployment in Nairobi stands at 14.70%. Female and Male unemployment stands at 18.99% and 11.55% respectively.
CHAPTER 4: PROJECT ALTERNATIVES

4.1 Project Alternatives

Regulation 18(1) of Legal Notice 101 specifies the basic content of an Environmental Impact Assessment Study Report subsequent to which, subsection (i) requires an analysis of alternatives including project site, design and technologies and reasons for preferring the proposed site, design and technologies.

This section analyses the Project alternatives in terms of site, technology scale and waste management options. However, under this study the alternative that was considered for the project was basically focused on:

1. “No-action” Alternative
2. Relocation Alternative
3. Alternative Land-uses
4. The Proposed Development as described in the EIA Report
5. Alternative materials and technology

Each of the project alternatives will be analyzed for environmental and social impacts to the extent possible and a rationalization made as to why the chosen alternatives constitute the best practicable environmental option.

4.1.1 The “No-action” Alternative

The selection of the “No-action” alternative would mean the discontinuation of project designs and result in the site being retained in its existing form. There are physical, biological and socio-economic implications of this alternative. Physically, the site is unlikely to undergo any major changes from its present condition and there would have been no need to relocate residents.

This option would imply economic loss to the proponent. If the site is left under developed, the proponent would lose in terms of financial commitments already made to the public by the president in outlining his agenda for the people and in design and planning of the project: professional fees to the project managers, architects, quantity surveyors, EIA experts as well as long-term revenue that the project is likely to generate.

The government shall also lose in terms of taxes that are to be collected from the proposed establishment both during construction and operation phase of the project, in addition, associated services which could accompany such investment including laundry services, security services and telecommunication shall not be achieved.
Similarly the government will not achieve one of its big 4 agenda, that is the provision of affordable housing. This is one of the earmarked projects that the government hopes to deliver on the pledges made to its people.

4.1.2 Re-location Alternative

This option is based on the criteria that the proposed development is to be sited in a zone planned for other developments or there is need to preserve any threatened, endangered, rare or unique species of plants or animals found at the site or the site is in or close to ecologically sensitive area.

The EIA processes established that the project is not out of character from the surrounding and that there are other similar establishments within the area. Therefore, the proposed development cannot be an impediment to any other developments since it is compatible with adjacent facilities. There are no physical, biological, cultural and socio-economic features of special concern at the site.

If this option is selected the proponent is required to look for an alternative site either within or outside the zone. This implies that the proponent has to buy or lease another piece of land elsewhere since at the moment, the proponent does not have an alternative site. It might take a very long time looking for and finding a similar sized land and completing all official transactions relating to change of land ownership. There is also no guarantee that the land would be available, and if such land is available, its cost might be beyond affordable for the proponent.

Further, all the other suitable sites have also been earmarked for similar development by the National Government inorder to achieve its objective of provision of affordable housing as part of its big 4 agenda.

The processes of designing and planning will have to be started over again. The proponent will need to re-engage professionals like architects, EIA experts, land surveyors and physical planners to assess the viability of the new site. Additional costs will arise from the design and approval of the building plans for the new site making the houses/units/facilities not attractive to the targeted market.

4.1.3 Alternative Land-use

The option allows the developer to explore other alternative land uses for the site other than the proposed housing project. This will require application for change or extension of use to allow for the alternative development. This is costly and might take a long time to mature since it also requires relevant authorities to approve the change of land-use. Any other proposed use for instance commercial, industrial and recreational would mean user incompatibility with current neighbourhood land uses. The change might also be massively objected by the residents in the neighborhood.
4.1.4 The Proposed Development as described in the EIA Report

The impacts and mitigation measures for this alternative are discussed in detail throughout this report. The positive impacts have been identified. This alternative will have significant impacts on the environment and therefore has considered the necessary measures to mitigate the identified issues of concern.

The alternative is likely to have the greatest implications on socio-economic environment of the area and surrounding communities. Due to the proposed quality of the development, it is anticipated that it would provide a major housing opportunity for area development.

The Merits of this alternative are as follows:
1. There will be stable and reliable housing available to residents within the Project area and the county at large.
2. The property (land) value in the area will appreciate.
3. The project design and proposed housing units for the whole land parcel has ensured optimal economic and spatial land-use;
4. Visual and aesthetic amenities of the area shall improve.
5. The county and national economies will improve from the revenue collected.
6. The National Government will be able to deliver on its agenda of affordable housing.

4.1.5 Alternative materials and technology

Several alternatives were considered for this project, based on the need for sustainable and environment friendly implementation and operation of development projects. The project should be developed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental requirements. Equipment that saves energy and water resources should be given first priority without compromising on cost or availability.

The construction machinery to be used will utilize electric energy from Kenya Power and others will be diesel powered. All machines will be rated for power demand and will be used with high levels of efficiency.

The constructed units will have large windows and the buildings optimized to make use of daylight therefore reducing the need to switch on artificial lights during the day. Natural ventilation will also be considered for all units including the intended social and workplaces. Mechanical ventilation will be minimal, mostly confined in offices in the form of a pedestal fan.

All materials including fittings will bear the standardization mark from Kenya Bureau of Standards (KEBS) as a proof of having met the required industry standards. Those materials not required to be standardized by KEBS will be approved by the resident or project engineers after carrying out tests or inspections, as the case may be.
The proponent has chosen to use steel reinforced cement concrete frames comprising a network of columns and connecting beams to form the structure of the proposed buildings. Reinforced cement concrete has advantages over the conventional brick and mortar in that the reinforced concrete building system is more durable than any other building system while at the same time, fire and weather resistance of reinforced concrete is fair. Compared to the use of steel in structure, reinforced concrete requires less skilled labor for the erection of the structure. Additionally, the maintenance cost of reinforced concrete is very low as compared to other materials such as steel.
CHAPTER 5: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

5.1 Introduction

Environmental impact assessment is a tool for environmental conservation and has been identified as a key component in new project implementation. According to section 58 of the Environmental Management and Coordination Act (EMCA) No. 8 of 1999, second schedule 9 (I), and Environmental (Impact Assessment and Audit ) Regulation, 2003, both new and old projects must undergo Environmental Impact assessment and Audits. The report of the same must be submitted to National Environmental Management Authority (NEMA) for approval and issuance of the relevant certificates.

There is a growing concern in Kenya and at global level that many forms of development activities cause damage to the environment. Development activities have the potential to damage the natural resources upon which the economy is based. Environmental Impact Assessment is a useful tool for protection of the environment from the negative effects of developmental activities. It is now accepted that development projects must be economically viable, socially acceptable and environmentally sound.

5.2 Environmental policy

This EIA has been prepared to fully comply with environmental and social safeguard policies and procedures as per various Regulations by National Environment Management Authority, in Kenya.

5.3 Relevant Kenya Policies

The policies that are relevant to the proposed project include the following:

5.3.1 Policy Paper on Environmental and Development (Sessional Paper No. 6 of 1999)

This policy was formulated on the basis of the National Environment Action Plan (NEAP) process of 1994. The policy’s major objective is to harmonize environmental and developmental concerns to ensure sustainability. Furthermore, this policy ensures that environmental issues are taken into consideration before the commencement of development policies, programmes, plans and projects. The proposed project is therefore consistent with the Sessional Paper No. 6 of 1999.

5.3.2 Physical Planning Policy

The current policy governs the development and approval of all building plans as provided for in the Physical Planning Act (Cap 286). The proposed project will be subjected to the provisions of this policy and legislation.
5.3.3 Public Health Policy
The prevailing public health policy calls upon the project proponent to ensure that buildings are adequately provided with utilities so that they are fit for human habitation. The proposed development has been designed by professional engineers and architects and as such will have all amenities/utilities that are essential for safeguarding public health for all people using the facilities.

5.3.4 National Housing Policy of Kenya (Sessional Paper No. 3 of 2004)
The housing policy was mainly intended to facilitate increased investment by the formal and informal private sector, in the production of housing for low and middle-income urban dwellers. The overall goal of this Housing Policy is to facilitate the provision of adequate shelter and a healthy living environment at an affordable cost to all socio-economic groups in Kenya in order to foster sustainable human settlements. This is meant to minimise the number of citizens living in shelters that are below the habitable living conditions. The proposed project will ensure to comply with the provisions of the above policy.

5.3.5 The Kenya Vision 2030
Kenya Vision 2030 is based on three "pillars": Economic, Social, and Political. The 2030 goal for urban areas, to reach “a well-housed population living in an environmentally-secure urban environment in particular, will be achieved by bringing basic infrastructure and services namely roads, street lights, water and sanitation facilities, storm water drains, footpaths, and others. It is also important the promotion of: environmental conservation and pollution and waste management, through the application of the right economic incentives in development initiatives.

Moreover, Environment’s cleanliness and security is ensured via protection and conservation of sensitive areas such wetlands and wildlife corridors and migratory routes which can be done by conducting project’s Environmental and Social Impact Assessments and developing of comprehensive mapping of land use patterns in Kenya.

5.3.6 Nairobi Metro 2030
Nairobi Metro 2030 was developed in the year 2008 to provide a guide for the NMR play its role in the National growth strategies under the Kenya Vision 2030. It is a transitional document that brings into focus challenges faced under urban growth and development. The document provides forum to achieve sustained rates of economic growth necessary for successful economic and social development. The Metro 2030 provides links with the Central Government through Kenya Vision 2030 and other development plans as well as seeking to strengthen the Local Authorities as part of the devolvement of power and recognizing need for ensuring efficient and effective management of resources at the grassroots.

Nairobi Metro 2030 carries the vision for Nairobi Metropolitan Region to be a World Class African Metropolis supportive to the overall national agenda under the Kenya
Vision 2030. The agenda to achieve this vision is the need to enhance mechanisms for economic growth, employment creation, improved lifestyles and improved infrastructure. Therefore, the proposed project contributes to the Nairobi Metro 2030 by providing development that will contribute to the collective growth within the metropolitan.

5.3.7 Housing Finance Policy in Emerging Markets – The World Bank

In 1993, the World Bank published an influential report on housing policy, “Housing: Enabling Markets to Work.” This report documented the importance of housing in the economy while at the same time providing governments with guidelines on how best to design policy to create efficient housing markets. A section of that report already focused on housing finance and its importance in the effective operation of housing markets.

Although the importance of the housing sector in social and economic development is widely accepted, the role of housing finance has gained prominence in the last decade. This shift has mirrored the rise in importance accorded to the development of the financial sector. The 2002 World Bank Development report emphasized the importance of growing the financial sector as part of a development strategy. Housing finance is often seen as critical both to the housing sector and to the development of the financial sector (banks, nonbanking financial institutions, and bond markets).

5.4 Institutional arrangements

Environmental Impact Assessment (EIA) is a methodology used to identify the actual and probable impacts of the projects and programmes on the environment and to recommend alternatives and mitigating measures. The assessment is required at all stages of project development with a view to ensuring environmentally sustainable development for both existing and proposed public and private sector development ventures. The National EIA regulations were issued in accordance with the provisions of Environmental Management and Coordination Act (EMCA) of 1999. The EIA Regulations must be administered, taking into cognizance provisions of EMCA 1999 and other relevant national laws. The intention is to approve and license only those projects that take into consideration all aspects of concern to the public as they impact on health and the quality of the environment.

5.5 Institutional Framework

At present there are over twenty (20) institutions and departments which deal with environmental issues in Kenya. Some of the key institutions include the National Environmental Council (NEC), National Environmental Management Authority (NEMA), the Forestry Department, Kenya Wildlife Services (KWS), Water Resources Management Authority (WRMA) and others. There are also local and international NGOs involved in environmental issues in the country.
5.5.1 National Environmental 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. A Director-General appointed by the president heads NEMA. The Authority shall:

- Co-ordinate the various environmental management activities being undertaken by the lead agencies and promote the integration of environmental considerations into development policies, plan, programmes and projects with a view to ensuring the proper management and rational utilisation of the environmental resources on a sustainable yield basis for the improvement of the quality of human life in Kenya.
- Take stock of the natural resources in Kenya and their utilisation’s and consultation, with the relevant lead agencies, land use guidelines.
- Examine land use patterns to determine their impact on the quality and quantity of the natural resources.
- Carry out surveys, which will assist in the proper management and conservation of the environment.
- Advise the government on legislative and other measures for the management of the environment or the implementation of relevant international conservation treaties and agreements in the field of environment as the case may be.
- Advise the government on regional and international environmental convention treaties and agreements to which Kenya should be a party and follow up the implementation of such agreements where Kenya is a party.
- Undertake and co-ordinate research, investigation and surveys in the field of environment and collect and disseminate information about the findings of such research, investigation or survey.
- Mobilise and monitor the use of financial and human resources for environmental management.
- Identify projects and programmes or types of projects and programmes, plans and policies for which environmental audit or environmental monitoring must be conducted under EMCA.
- Initiate and evolve procedures and safeguards for the prevention of accidents, which may cause environmental degradation and evolve remedial measures where accidents occur.
- Monitor and assess activities, including activities being carried out by relevant lead agencies in order to ensure that the environment is not degraded by such activities, environmental management objectives are adhered to and adequate early warning on impending environmental emergencies is given.
- Undertake, in co-operation with relevant lead agencies programmes intended to enhance environmental education and public awareness about the need for sound
environmental management as well as for enlisting public support and encouraging the effort made by other entities in that regard.

- Publish and disseminate manuals, codes or guidelines relating to environmental management and prevention or abatement of environmental degradation.
- Render advice and technical support, where possible to entities engaged in natural resources management and environmental protection so as to enable them to carry out their responsibilities satisfactorily.
- Prepare and issue an annual report on the state of the environment in Kenya and in this regard may direct any lead agency to prepare and submit to it a report on the state of the sector of the environment under the administration of that lead agency and,
- Perform such other functions as government may assign to the Authority or as are incidental or conducive to the exercise by the authority of any or all of the functions provided under EMCA.

However, NEMA mandate is designated to the following committees:

### 5.5.2 Public Complaints Committee

The Committee performs the following functions:

- Investigate any allegations or complaints against any person or against the authority in relation to the condition of the environment in Kenya and on its own motion, any suspected case of environmental degradation and to make a report of its findings together with its recommendations thereon to the Council.
- Prepare and submit to the Council periodic reports of its activities which shall form part of the annual report on the state of the environment under section 9 (3) and
- To perform such other functions and excise such powers as may be assigned to it by the council.

### 5.5.3 National Environment Action Plan Committee

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

- Contain analysis of the Natural Resources of Kenya with an indication as to any pattern of change in their distribution and quantity over time.
- Contain analytical profile of the various uses and value of the natural resources incorporating considerations of intergenerational and intra-generational equity.
- Recommend appropriate legal and fiscal incentives that may be used to encourage the business community to incorporate environmental requirements into their planning and operational processes.
- Recommend methods for building national awareness through environmental education on the importance of sustainable use of the environment and natural resources for national development.
- Set out operational guidelines for the planning and management of the environment and natural resources.
• Identify actual or likely problems as may affect the natural resources and the broader environment context in which they exist.
• Identify and appraise trends in the development of urban and rural settlements, their impact on the environment, and strategies for the amelioration of their negative impacts.
• Propose guidelines for the integration of standards of environmental protection into development planning and management.
• Identify and recommend policy and legislative approaches for preventing, controlling or mitigating specific as well as general diverse impacts on the environment.
• Prioritise areas of environmental research and outline methods of using such research findings.
• Without prejudice to the foregoing, be reviewed and modified from time to time to incorporate emerging knowledge and realities and;
• Be binding on all persons and all government departments, agencies, States Corporation or other organ of government upon adoption by the national assembly.

5.5.4 Standards and Enforcement Review Committee

This is a technical Committee responsible for environmental standards formulation methods of analysis, inspection, monitoring and technical advice on necessary mitigation measures.

Standards and Enforcement Review Committee consists of the members set out in the third schedule to the Environmental Management and Co-ordination Act. The Permanent Secretary under the Minister is the Chairman of the Standard and Enforcement Review Committee. The Director General appoints a Director of the Authority to be a member of the Standards and Enforcement Review Committee who is the Secretary to the committee and who provides secretarial services to the Committee. The Committee also regulates its own procedure. The Standard and Enforcement Review Committee may co-opt any person to attend its meetings and a person so co-opted shall participate at the liberations of the committee but shall have no vote. Finally, the Committee shall meet at least once every three months for the transactions of its business.

5.5.5 National Environmental Tribunal (NET)

This tribunal guides the handling of cases related to environmental offences in the Republic of Kenya. If disputes to this project arise, they are supposed to be presented here for hearing and legal direction.

5.5.6 National Environmental Council (NEC)

EMCA 1999 No. 8 Part III section 4 outlines the establishment of the National Environmental Council (NEC). NEC is responsible for policy formulation and directions for purposes of EMCA; set national goals and objectives and determines policies and priorities for the protection of the environment and promote co-operation among public departments, local authorities,
private sector, non-governmental organisations and such other organisations engaged in environmental protection programmes. It also performs such other functions as assigned under EMCA.

5.5.7 National Environmental Action Plan (NEAP)

The NEAP for Kenya was prepared in mid 1990s. It was a deliberate policy effort to integrate environmental considerations into the country’s economic and social development. The integration process was to be achieved through a multi-sectoral approach to develop a comprehensive framework to ensure that environmental management and the conservation of natural resources are an integral part of societal decision-making.

5.6 Legal Framework

There are several legal provisions on environmental protection, which touch on and regulate the development of infrastructure like the one under this proposal. A summary of the various legislations relevant to the development is given hereunder. The following pieces of legislation and regulations are applicable to the proposed development.

5.6.1 The Environmental Management and Coordination Act, 1999

The Act (amended 2015) defines the legal and administrative co-ordination of the diverse sectoral initiatives in the field of environment. The Act harmonizes the sector specific legislations touching on the environment in a manner designed to ensure greater protection of the environment. Its functions include:

- The coordination of various environmental management activities;
- Initiation of legislative proposals;
- Research, investigations, and surveys on the field of environment.
- Creation of environmental education and awareness programmes;
- Advise the government on regional and international agreements to which Kenya is party;
- Executing the Environmental Impact Assessment (EIA) under the Environmental Impact (Assessment and Auditing) regulations, 2003, among other duties.

5.6.2 The Environmental Impact (Assessment and Auditing) Regulations, 2003

Environmental Impact Assessment under the Act is guided by the Environmental Impact Assessment (Assessment and Auditing) Regulations of the year 2003, which is given under legal notice no. 101. The regulations stipulate the ways in which environment impact assessment and audits should be conducted. The project falls under the second schedule of EMCA, 1999 section 58 (1), (4) that require an Environmental Impact Assessment project report. As stipulated by the legal notice No. 101, 2003, PART V, Section 31 (3) (a) (i) and (ii) it is required that an environmental assessment be undertaken to provide baseline information
upon which subsequent environmental control audit shall be based. The EIA expert has compiled the report as per the format and contents in the regulations.

5.6.3 Environmental Management and Coordination (Water Quality regulations), 2006

These regulations provide for the protection of lakes, rivers, streams, springs, wells and other water sources used for domestic, industrial, agricultural, recreational and any other purpose. Different standards apply to different mode of usage. The objective of the regulations is to protect human health and the environment. The effective enforcement of the water quality regulations will lead to a marked reduction of water-borne diseases and hence a reduction in the health budget.

The regulations also provide guidelines and standards for the discharge of poisons, toxins, noxious, radioactive waste or other pollutants into the aquatic environment in line with the Third Schedule of the regulations. The regulations have standards for discharge of effluent into the sewer and aquatic environment. While it is the responsibility of the sewerage service providers to regulate discharges into sewer lines based on the given specifications, NEMA regulates discharge of all effluent into the aquatic environment. The regulations provide for the creation of a buffer zone for irrigation schemes of at least fifty (50) metres in width between the irrigation scheme and the natural water body. Standards for irrigation water are given in schedule nine of the regulations.

Everyone is required to refrain from any actions, which directly or indirectly cause water pollution, whether or not the water resource was polluted before the enactment of the Environmental Management and Coordination Act (EMCA) Gazetted in 1999. The proposed project will ensure, through the EMP, that appropriate measures are taken to prevent pollution of underground and surface water sources are implemented throughout the project cycle.

5.6.4 Environmental Management and Coordination (Waste Management Regulations), 2006

The Minister for Environment and Natural Resources gazetted these regulations in 2006. These Regulations may be cited as the Environmental Management and Co-ordination (Waste Management) Regulations, 2006. Waste Management Regulations are meant to streamline the handling, transportation and disposal of various types of waste. The aim of the Waste Management Regulations is to protect human health and the environment. Currently, different types of waste are dumped haphazardly posing serious environmental and health concerns. The regulations place emphasis on waste minimization, cleaner production segregation of waste at source and proper disposal measures are undertaken throughout the project cycle. The provisions in PART IV (24) and PART II (9), the wastes are to be handled, stored and transported by a licensed individual authorized by NEMA and delivered into a designated storage plant or site. The proponent for the project will
segregate waste at source and ensure only licensed handlers are allowed to collect and dump in a designated landfill.

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

The Controlled Substances Regulations defines controlled substances and provides guidance on how to handle them. This regulation mandates NEMA to monitor the activities of persons handling controlled substances, in consultation with relevant line ministries and departments, to ensure compliance with the set requirements. Under these regulations, NEMA will be publishing a list of controlled substances and the quantities of all controlled substances imported or exported within a particular. The list will also indicate all persons holding licenses to import or export controlled substances, with their annual permitted allocations.

The regulations stipulate that controlled substances must be clearly labelled with among other words, “Controlled Substance-Not ozone friendly”) to indicate that the substance or product is harmful to the ozone layer. Advertisement of such substances must carry the words, “Warning: Contains chemical materials or substances that deplete or have the potential to deplete the ozone layer.”

Producers and/or importers of controlled substances are required to include a material safety data sheet. Persons are prohibited from storing, distributing, transporting or otherwise handling a controlled substance unless the controlled substance is accompanied by a material safety data sheet. Manufacturers, exporters or importers of controlled substances must be licensed by NEMA. Further, any person wishing to dispose of a controlled substance must be authorized by NEMA. The licensee should ensure that the controlled substance is disposed of in an environmentally sound manner. These regulations also apply to any person transporting such controlled substances through Kenya. Such a person is required to obtain a Prior Informed Consent (PIC) permit from NEMA. The project will ensure that it minimizes or reduces the use of controlled substances. Where needed, the proponent will ensure that required safe working procedures and permits are in place.

5.6.6 Environmental Management and Coordination (Conservation of Biodiversity regulations), 2006

Kenya has a large diversity of ecological zones and habitats including lowland and mountain forests, wooded and open grasslands, semi-arid scrubland, dry woodlands, and inland aquatic, and coastal and marine ecosystems. In addition, a total of 467 lake and wetland habitats are estimated to cover 2.5% of the territory. In order to preserve the country’s wildlife, about 8% of Kenya’s land area is currently under protection.

The country has established numerous goals, as well as general and specific objectives that relate to these issues, among others: environmental policies and legislations; involvement of
communities; documentation of national biological resources; sustainable management and conservation of biodiversity; fair and equitable sharing of benefits; technical and scientific cooperation; biodiversity assessment; dissemination of information; institutional and community capacity building; and integration of biodiversity concerns into development planning. The proposed project will ensure compliance with the above regulation throughout the project cycle.

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

These Regulations determine 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. In determining whether noise is loud, unreasonable, unnecessary or unusual, the following factors may be considered:

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

These regulations also relate noise to its vibration effects and seek to ensure no harmful vibrations are caused by controlling the level of noise. Any person(s) intending to undertake activities in which noise is suspected to be injurious or endangers the comfort, repose, health or safety of others and the environment, must make an application to NEMA and acquire a license subject to payment of requisite fees and meeting the license conditions.

The regulation clearly states that no persons shall carry out activities such as fireworks and demolitions without a valid permit issued by the authority (Part IV-19).

The provision of this Act will be applied in the management of the project with a strict adherence to the provisions of the above regulations.

5.6.8 Air Quality Regulations, 2014

The objective of this regulation is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. It provides for the establishment of emission standards for various sources, including as mobile sources (e.g. motor vehicles) and stationary sources (e.g. industries) as outlined in the Environmental Management and Coordination Act, 1999 (2015 amendment). It also covers any other air pollution source as
may be determined by the Minister in consultation with the Authority. Emission limits for various areas and facilities have been set. The regulations provide the procedure for designating controlled areas, and the objectives of air quality management plans for these areas. The following operations (provided they are not used for disposal of refuse), are exempt from these regulations:

- Back-burning to control or suppress wildfires;
- Firefighting rehearsals or drills conducted by the Fire Service Agencies;
- Traditional and cultural burning of savannah grasslands;
- Burning for purposes of public health protection;

The proponent shall observe these requirements and implement mitigation measures proposed in the EMP in an effort to comply with the provisions of these regulations.

The Traffic Act, 2012

The Traffic Act gives provisions and guidelines that govern the Kenya roads transport sector. These guidelines are essential to private, public and commercial service vehicles in ensuring safety and sanity on the roads hence ensuring the environment; the human being a component is safeguarded. In section 41 The Act demands for installation and certification of speed governors for the commercial vehicles ferrying goods adjusted to the loading condition of such vehicles to a limit of 80 KPH, registration and competence of drivers.

Moreover, the owner of commercial vehicles or trailer shall ensure clear markings on their vehicles in English language on the right side of the vehicle showing ownership details, tare weight of vehicle and maximum authorized weight.

Section 26 and 27 of the same discourages engines that emit exhaust gases to the atmosphere without passing via a silencer or expansion chamber.

In ensuring safety of all the persons in transit section 56 encourages that every public and commercial vehicle be fitted with inspected and first class first aid box and fire extinguisher.

The proponent has already conducted a traffic impact assessment to inform the project on the best measures to avoid congestion on the roads.

Public Health Act (Cap. 242)

Part IX, section 115, of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires that Local Authorities take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable to be injurious or dangerous to human health. Such nuisance or conditions are defined under section 118 as waste pipes, sewers, drainers or refuse pits in such state, situated or constructed as in the opinion of the medical officer of health to be offensive or injurious to health. The proposed project will adhere to the provisions provided in this Act.

The Act provides guideline to the contractor on how he shall manage all wastes (Liquid and Solid Wastes) emanating from the project in a way not to cause nuisance to the neighbours, this Act during construction shall be read alongside the waste management
regulations of EMCA 1999 for utmost compliance.

Urban and Cities Act No 13 of 2011

The Act came into function with regard to Article 184 of the Constitution providing regulations on the classification, governance and management of urban areas and cities and further providing the criteria of establishing urban areas.

Part III of the Act gives the regulations and functions of every city or municipality with regard to integrated development plans, which shall include but not limited to environmental plans and disaster preparedness, within the area of jurisdiction in achieving objects of devolved governments under section 174 of the constitution while maintaining the socio-economic rights of the people.

Moreover, in the first schedule, the Act enlists the services the services that the any municipality shall provide to its residents which include but not limited to traffic control and parking, water and sanitation, refuse collection, solid waste management, pollution abatement services among others.

The proposed project is within the Nairobi County CIDP.

The Land Laws (Amendment) Act, 2016

This is an ACT of Parliament to give effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for the sustainable administration and management of land and land based resources, and for connected purposes. This amendment provides for procedures on evictions from land, and for connected purposes.

The Land Act of 2012 subsection (1) states that ‘any land may be converted from one category to another in accordance with the provisions of this Act or any other written law.’ it continues to state in subsection (2) that Without prejudice to the generality of subsection (1)

a) Public land may be converted to private land by alienation
b) Subject to public needs or in the interest of defence, public safety, public order, public morality, public health, or land use planning, public land may be converted to community land

c) private land may be converted to public land by
   i. Compulsory acquisition;
   ii. Reversion of leasehold interest to Government after the expiry of a lease; and
   iii. Transfers; or
   iv. Surrender.

(d) Community land may be converted to either private or public land in accordance with the law relating to community land enacted pursuant to Article 63(5) of the Constitution.

It is important to note that any substantial transaction involving the conversion of public land to private land shall require approval by the National Assembly or county assembly as the case may be.

Part I of the same Act states that title to land may be acquired through—
Section 152C of 2012 on eviction from a public land will require affected persons to be notified in writing, by notice in the gazette and in at least 2 newspapers nationwide and circulation by radio announcement in local language at least 3 months before eviction. In the amended Land Law Act of 2016, evictions or demolitions must be carried out in a manner that respects dignity, right to life and security for those evicted. The proposed project will ensure compliance with the provisions of this Act on settlement and acquisition of the land.

The Land Registration Act, 2012

The Land Registration Act is in place to revise, consolidate and rationalize the registration of titles to land, to give effect to the principles and objects of devolved government in land registration, and for connected purposes. This Act applies to Subject to section 4, this Act shall apply to:

- Registration of interests in all public land as declared by Article 62 of the Constitution;
- Registration of interests in all private land as declared by Article 64 of the Constitution; and
- Registration and recording of community interests in land.

Section 24 states that: (a) the registration of a person as the proprietor of land shall vest in that person the absolute ownership of that land together with all rights and privileges belonging or appurtenant thereto; and (b) the registration of a person as the proprietor of a lease shall vest in that person the leasehold interest described in the lease, together with all implied and expressed rights and privileges belonging or appurtenant thereto and subject to all implied or expressed agreements, liabilities or incidents of the lease.

The proponent will ensure his/her compliance with the provisions of this Act.

4.6.1 The National Land Commission Act, 2012 (No. 5 of 2012)

Section 5 of the Act outlines the Functions of the Commission, pursuant to Article 67(2) of the Constitution as follows 5(1):-

- to manage public land on behalf of the national and county governments;
- to recommend a national land policy to the national government;
- to advise the national government on a comprehensive programme for the registration of title in land throughout Kenya;
To monitor and have oversight responsibilities over land use planning throughout the country.

**Water Act, 2016**

The Water Act, 2016 provides the legal framework for the management, conservation, use and control of water resources and for the acquisition and regulation of right to use water in Kenya. It also provides for the regulation and management of water supply and sewerage services. In general, the Act gives provisions regarding ownership of water, institutional framework, national water resources, management strategy, and requirement for permits, state schemes and community projects Part II. Part IV of the Act entitles every persons to a right to clean and safe water.

This Act shall be relevant during construction of the project whereby the proponent will be required to comply with the effluent discharge requirements during construction of the project which will require that the contractor obtain relevant permits from County Government.

**The Energy Act of 2019**

The Act establishes that any persons planning, building, operating or maintain a transmission or distribution system must seek authorization to carry out electrical works, certificate of electrical works issued/prescribed and licenses granted by the Authority.

The proponent shall ensure that the electricians are qualified including other requirements during construction. The finished units will have each a solar water heating system so as to ensure harnessing of clean green energy.

**Building Code 2009**

This code was formulated to provide rules and guideline to be observed during construction it requires the proponent to adhere to the set rules and guidelines in the code. The code requires building plans to be approved by county government. It also prohibits;

- Erection, or causing or permitting erection of temporary buildings (e.g. a site office, store, builder’s shed etc.) to which the Regulations apply without a permit granted under Regulations and
- Knowingly occupying a temporary building which is erected in contravention to the regulations

The proponent is committed to comply with standards and guidelines set in developing the proposed project in accordance with the Building Code of 2009.

**The Occupational Safety and Health Act (OSHA ),2007**

Before any premises are occupied, or used a certificate of registration must be obtained from the chief inspector. The occupier must keep a general register. The Act covers provisions for health, safety and welfare. This Act applies to all workplaces where any person is at work, whether
temporarily or permanently. The purpose of this Act is to secure the safety, health and welfare of persons at work, and protect persons other than persons at work against risks to safety and health arising out of, or in connection with, the Activities of persons at work. Some of the areas addressed here are machinery safety, chemical safety and health, safety and welfare special provisions are also provided in the ILO conventions on safety and health in construction recommendation, 1988 R175. All premises must acquire/obtain a certificate of registration before occupying or putting it into use. The Act provides OHS guidelines which shall be followed by both the contractor and the proponent during implementation of the project in order to avoid injuries and even loss of life to workers and neighbouring community.

The Standards Act Cap. 496
The Act is meant to promote the standardization of the specification of commodities, and to provide for the standardization of commodities and codes of practice; to establish a Kenya Bureau of Standards, to define its functions and provide for its management and control. Code of practice is interpreted in the Act as a set of rules relating to the methods to be applied or the procedure to be adopted in connection with the construction, installation, testing, sampling, operation or use of any article, apparatus, instrument, device or process. The proponent shall ensure to source materials that are regulated and bear the KEBS standardization mark to ensure safety and quality of products.

Public Roads and Roads of Access Act (Cap. 399)
Sections 8 and 9 of the Act provides for the dedication, conservation or alignment of public travel lines including construction of access roads adjacent to lands from the nearest part of a public road.
Sections 10 and 11 allows for notices to be served on the adjacent land owners seeking permission to construct the respective roads.
The proponent shall issue notices to land owners adjacent to the project area before construction works begin and shall inform the relevant bodies on the intended modifications of the roads near the proposed project.

Physical Planning Act (Cap 286)
An Act of Parliament to provide for the preparation and implementation of physical development plans and for connected purposes enacted by the Parliament of Kenya Under this Act, no person shall carry out development within the area of a local authority without a development permission granted by the local authority under section 33. The local authority concerned shall require the developer to restore the land on which such development has taken place to its original condition within a period of not more than ninety days. If on the expiry of the ninety days’ notice given to the developer such restoration has not been effected the concerned local authority shall restore the site to its original condition and recover the cost incurred thereto from the developer.
Thus the Act directs, regulates and harmonizes development and use of land over the Country, the design of the houses has allowed space to be used as playground for children as a communal club house for social amenities

**Employment Act Cap 226 of 2007**

The Act (Revised Edition 2012) is enacted to consolidate the law relating to trade unions and trade disputes, to provide for the registration, regulation, management and democratization of trade unions and employers organizations and federations. Its purpose is to promote sound labour relations through freedom of association, the encouragement of effective collective bargaining and promotion of orderly and expeditious dispute the protection and promotion of settlement conducive to social justice and economic development for connected purposes. This Act is important since it provides for employer – employee relationship that is important for the activities that would promote management of the environment within the energy sector.

The proponent will ensue that the contractor prepares a Labour management plan to guide on his engagement with workers and among workers during the construction period.

**Penal Code Cap 63**

Section 191 of the penal code states that if any person or institution that voluntarily corrupts or foils water from public springs or reservoirs, rendering it less fit for its ordinary use is guilty of an offence. Section 192 of the same Act says a person who makes or vitiates the atmosphere in any place to make it noxious to health of persons /institution, dwelling or business premises in the neighbourhood or those passing along public way, commit an offence. There is no water source such as a spring or stream within and in the vicinity of the site. All the activities during construction will be monitored for pollution as contained in this EIA.

**The County Government Act 2012**

The County Government Act of 2012, which has been adapted to the Constitution’s State and County structure in relation to devolution, declares the County Integrated Plan to be central to the County’s administration and prohibits any public spending outside of the plan. The Act clarifies that the County Integrated Plan to be broken down into the economic plan, physical plan, social environmental plan and spatial plan. Also, the Act states that the County Plan commands,

- County integrated development plan
- County Sectoral plans
- County spatial plan
- Cities and urban areas plans as stipulated by Urban Areas and Cities Act

The act also stipulates that the County Government will be responsible for functions stipulated in article 186 and assigned in the Fourth Schedule of the Constitution which includes control of air pollution, noise pollution, other public nuisances and outdoor advertising.
The Proponent will ensure the project will be compliant with County Government Act 2012 by controlling all forms of pollution. Additionally the project proponent shall be required to pay the annual Land rates and comply to the requirements provided by the county government and condition attached to the approved plans of the development.

**Work Injury Benefits Act, 2007**

This is an Act of Parliament to provide for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes. An employee is a person who has been employed for wages or a salary under a contract and includes apprentice or indentured learner. The proponent will ensure that all workers during construction period are insured. All reportable accidents and all fatalities will be reported to DOSHS and those affected will be extended medial aid and assisted during recovery to normal health.

**HIV/AIDS Prevention and control Act (Act No. 14 of 2006)**

Part 11, Section 7 of the Act requires that HIV and AIDs education be carried out at the workplace. The government is expected to ensure the provision of basic information and instruction on HIV and Aids prevention and control to:

(i) Employees of all government ministries, departments, authorities, and other agencies as well as employees of private and informal sectors.

(ii) The information on HIV/AIDS is expected to be treated with confidentiality at the workplace and positive attitude towards infected employees.

The proponent will ensure that trainings and sensitization programs are offered to all workers during construction phase as provided by the law.
CHAPTER 6: ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT

6.1 Introduction

This EIA has been systematically conducted to determine whether the proposed Project will have adverse impact on the environment. The Environmental Management and Co-ordination Act (EMCA) No.8 of 1999 provides the legal and statutory guideline for the Environment and Social Impact Assessment process in Kenya.

The impacts in this chapter have been generated based on the analysis of the proposed environment in relation to the proposed project. The impacts arising during each of the phases of the proposed development namely construction, operation and decommissioning, can be categorized into:

- Impacts on biophysical environment;
- Health and safety impacts; and
- Social-economic impacts

6.2 Definition and Classification of Environment Impact

An environmental impact is any change to the existing condition of the environment caused by human activity or an external influence. Impacts may be:

- Positive (beneficial) or negative (adverse);
- Direct or indirect, long-term or short-term in duration, and wide-spread or local in the extent of their effect.

Impacts are termed cumulative when they add incrementally to existing impacts. In the case of the project, potential environmental impacts would arise during the pre-construction, construction and the operations phases of the Project and at those stages positive and negative impacts would occur.

6.2.1 Impact Significance

The purpose of this EIA report is to identify the significant impacts related to the Project or activity under consideration and then to determine the appropriate means to avoid or mitigate those which are negative. Significant impacts are defined, not necessarily in order of importance, as being those which:

- Are subject to legislative control;
- Relate to protected areas or to historically and culturally important areas;
- Are of public concern and importance;
- Are determined as such by technically competent specialists;
- Trigger subsequent secondary impacts;
- Elevate the risk to life threatening circumstances; and
- Affect sensitive environmental factors and parameters
6.2.2 Impact Assessment and Scoring

The potential impacts associated with the proposed development have been assessed as presented in the table 6.1 below. Precautionary principle was used to establish the significance of impacts and their management and mitigation i.e. where there is uncertainty or insufficient information, the Environmentalist erred on the side of caution.

Table 6.1: Environment Impact Scoring and Rating Criteria

<table>
<thead>
<tr>
<th>Severity of Impact</th>
<th>Rating</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insignificant / non harmful / less beneficial</td>
<td>-1/+1</td>
<td>Very Low</td>
</tr>
<tr>
<td>Small / Potentially harmful / Potentially beneficial</td>
<td>-2/+2</td>
<td>Low</td>
</tr>
<tr>
<td>Significant / slightly harmful / significantly beneficial</td>
<td>-3/+3</td>
<td>Medium</td>
</tr>
<tr>
<td>Great / harmful / beneficial</td>
<td>-4/+4</td>
<td>High</td>
</tr>
<tr>
<td>Disastrous / extremely harmful / extremely beneficial</td>
<td>-5/+5</td>
<td>Very high</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spatial Scope of the Impact</th>
<th>Rating</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity specific</td>
<td>-1/+1</td>
<td>Very Low</td>
</tr>
<tr>
<td>Right of way specific</td>
<td>-2/+2</td>
<td>Low</td>
</tr>
<tr>
<td>Within Project area 5km radius</td>
<td>-3/+3</td>
<td>Medium</td>
</tr>
<tr>
<td>Regional</td>
<td>-4/+4</td>
<td>High</td>
</tr>
<tr>
<td>National</td>
<td>-5/+5</td>
<td>Very high</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duration of Impact</th>
<th>Rating</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>one day to one month</td>
<td>-1/+1</td>
<td>Very Low</td>
</tr>
<tr>
<td>one month to one years</td>
<td>-2/+2</td>
<td>Low</td>
</tr>
<tr>
<td>Within Project construction period</td>
<td>-3/+3</td>
<td>Medium</td>
</tr>
<tr>
<td>within the Project life</td>
<td>-4/+4</td>
<td>High</td>
</tr>
<tr>
<td>at decommissioning</td>
<td>-5/+5</td>
<td>Very high</td>
</tr>
</tbody>
</table>

Example of Cumulative Impact Scoring

1. +3,+2,+5,+4,+4,+1=+4 (the weight that occurs more is adopted)
2. +2,+2,+5,+4,+4,+1=+3 (if two scores or more tie, then an average of the scores shall be adopted)

6.3 Anticipated Positive Impacts

The following benefits are anticipated:

6.3.1 Addressing Housing Challenge:

The Project shall lead to improved accessibility to housing requirements of residents of Nairobi and targeted areas. This is a positive contribution to the government agenda of provision of affordable housing to its population.
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6.3.2 Realization Nairobi Metro vision 2030:
The project is directly linked to the vision 2030 and the President’s Big 4 agenda of providing for affordable housing to Kenyans. Infrastructure services within Nairobi Metropolis will also be enhanced.

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6.3.3 Employment opportunities:
The project shall directly result to creation of job opportunities both during construction and operation phases of the project also through tendering for consultancy services and construction works.

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<td>Interpretation</td>
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</table>

6.3.4 Market for Construction Materials:
The Project will require materials, some of which will be sourced locally. These include, quarry masonry stones, steel, plastic pipes, valves, cement, sand and hardcore. This will provide a ready market for suppliers in and outside the Project area.

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<tr>
<td>Interpretation</td>
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</table>
6.3.5 Economic Growth:
The project shall directly lead to improved local micro economy of the society of the residents and businessmen within the project area.

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</table>

Interpretation: High

6.4 Potential Negative Impacts

6.4.1 Vegetation Clearing, Soil Erosion and Sedimentation

Construction activities have the potential to clear vegetation and, loosen soils particularly on where excavations will be done, these soils can then be washed down into the lower areas (streams and valleys) leading to soil quality degradation. This impact is mildly significant because the site is already a built up area, with a few scattered tree species both indigenous and exotic and a mixture of fruits trees and flower shrubs. The rest of the land is bare land already cleared of vegetation by human activities. There is no stream, river or river source within the project site. However, there will be substantial amount of unwanted soil generation during excavation that the proponent will ensure that it is transported and disposed of at authorized sites as per relevant regulations mentioned in chapter five of this report.

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<td>Overall score</td>
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</table>

Interpretation: Low

Mitigation measures
The following is proposed to mitigate against soil erosion and, its effects and enhance vegetation cover.

- Adopt selective de-vegetation that aims at clearing only the project site where necessary.
- The proponent proposes to carry out landscaping of the area.
- Unnecessary felling of the existing trees should be avoided.
- Once the project lifespan ends, during decommissioning, the proponent shall replant the field with appropriate vegetative cover including indigenous trees.
- Planting trees, flowers and other green measures.
6.4.2  **Air Quality**

Potential air pollution caused by emissions from construction equipment (carbon, hydrocarbons, particulate matter,) earth movers and excavators, vehicles, concrete and cement batching plants and trucks, Emission of dust from trucks and vehicles accessing the construction areas and camp site/garage as well as material piling (sand and aggregate). Odor from temporary disruption of accumulated and buried solid waste materials at locations of construction, such impacts may affect the immediate residential houses and commercial premises. This impact will be temporal during both pre construction and project construction phase.

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<tr>
<td>Interpretation</td>
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</table>

**Mitigation Measures**

- Maintain construction equipment at high operational conditions maintained and serviced in accordance with the specifications such as to control emissions into the air.
- Earth moving be done under dump conditions as much as possible to prevent emission of dust into the air,
- Similarly, piled materials (sand and aggregate) should be maintained dump to prevent dust emissions,
- Use of sprinklers to regularly water construction site, this suppresses the dust menace at construction sites
- Screening of the construction site to contain and arrest construction-related dust.
- Vehicles delivering soil or dusty materials shall be covered to reduce spills and windblown dust.
- The removal of vegetation/topsoil shall be avoided until such time as clearance is required.

6.4.3  **Excessive Vibration and Noise Pollution**

Construction Phase for the proposed Project will most likely result in noise emissions as a result of the machines that will be used (excavation equipment among others) and construction vehicles delivering materials to site. Noise and excessive vibration can be a nuisance to the local community if construction works begin too early in the day and continues into the night.

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<td>Interpretation</td>
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</table>
Mitigation measures

- Limit the times of construction to daylight hours (8am-5pm).
- Erect signage to prohibit unnecessary hooting at the project site.
- Ensure that noise & excessive vibration from construction activities are within permissible levels as per the provision of Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009. This includes among others adhering to permissible noise and vibration levels.
- Construction work should strictly be undertaken between permissible time periods as stipulated in the second Schedule – Maximum Permissible Noise Levels for Construction Sites of EMCA(Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.
- Provide PPEs such as ear muffs to the contractors.
- Carry out baseline noise monitoring within the area before, during and after the construction works.
- Acquire noise and excessive vibrations emission permit from NEMA when undertaking excessive noise and vibration emitting activities including the demolition activities

6.4.4 Wastes removals and disposal

Solid wastes generated during pre-construction and construction includes: waste infrastructure materials, packaging material, plastics, cuttings and trimmings off materials among others. Dumping around the site will interfere with the aesthetic status on the surrounding environment. Plastic bags may act as pest breeding grounds which may be disease causing vectors to the local residents. Occupation phase will be marked by increased waste generation as compared to the existing conditions.

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Interpretation: Medium

Mitigation measures

- A site waste management plan should be prepared by the contractor prior to commencement of construction works. This should include designation of appropriate waste storage areas, collection and removal schedule and identification of approved disposal site;
- The project proponent and contractor must ensure that collection bins/ receptacles are placed at strategic locations within project site as collection centres to facilitate separation and sorting of various types of wastes.
- The waste shall be properly segregated and separated to encourage recycling of some useful waste materials i.e. some stone and concrete materials can be used as backfills.
- Contract a licensed waste handler to collect solid wastes which cannot be reused at the site.
- Adopt the 3R waste management approach, that is (reduce, reuse and recycle) whereby waste shall be segregated – plastics, glass, tins, papers, wood, metals etc. (later to be re-
used or recycled).

- Avail colour coded waste bins for source waste sorting at the project site.
- Recycling non-woven fabrics and PE films into plastic particles to make some daily plastic products like plastic slippers, plastic desks and chairs.

6.4.5 Public and Occupational Health and Safety Risks

Potential impacts during construction include: exposure to physical hazards from the construction activities, use of equipment; trips and fall hazards; rock falls/slides during construction of the upper floors and exposure to dust and noise. Construction workers are likely to have injuries and hazards as the construction works such as trenching and excavations as well as work at height unavoidably expose workers to occupational health and safety risks. The workers are also likely to be exposed to risk of construction noise and air pollution.

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<td>Interpretation</td>
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</table>

**Mitigation measures**

- Ensure that all construction machines and equipment are in good working conditions to prevent occupational hazards during excavation activities;
- Establish a Health and Safety Plan (HASP) for civil works areas ensuring the working hours are controlled and that employees are not allowed to extend the working hours beyond an acceptable limit for purposes of gaining extra pay;
- Provide adequate manual labour to meet the requirements of the tasks;
- Appoint a trained health and safety team for the duration of the construction work, monitor and advise appropriately on health and safety matters during the rehabilitation activities;
- Provide workers with gloves, ear gears, sturdy rubber boots and overalls to protect their skin from the effects of cement;
- Provide workers training on safety procedures and emergency response such as fire and first aid measures;

6.4.6 Irresponsible social behavior HIV/AIDS prevalence and drug abuse within the project area

The Project will attract new people to the Project area and this can lead to several repercussions leading to the spread of HIV/AIDS and/ or other sexually transmitted diseases (STDs). Influx of new people to the Project area especially construction workers can affect the number of new cases of HIV, because they often interfere with an otherwise stable situation but the contrary can also happen where the newcomers find themselves at higher risk.
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<tr>
<td>Interpretation</td>
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</table>

Mitigation Measures

Develop HIV/AIDS awareness programmes or initiatives to target the construction workers from the Project site including the youth; with the objective of reducing the risks of exposure and the spread of HIV virus in the Project area. Measures recommended for implementation to enable reduce the spread of the virus include the following:

- Conduct sensitization to the staff and community on drug abuse, irresponsible sexual behaviors, HIV and AIDS, stress management, and voluntary counseling and testing.
- Avail condom dispensers at the site to the construction staff and the latter occupants.
- Strengthen advocacy through awareness training in HIV/AIDS and other Sexually Transmitted Infections to the community members.
- Identify other players (local CBOs, NGOs, and government organizations) on HIV/AIDS for enhanced collaboration;
- Provide counseling and testing for HIV/AIDS.
- Prohibit smoking within the project site.

6.4.7 Surface drainage wastewater, and water pollution/ contamination

These impacts will be rampant during the pre-construction, construction and operations phase of the project. They will result mainly from storm water and accidental waste contamination of portable water with waste water during all the three project phases.

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<tr>
<td>Interpretation</td>
<td>high</td>
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Mitigation Measures

- Ensure that hazardous materials are handled and stored in a good manner, to limit their movement into the environment.
- Trenching during pluming works should not interfere with the existing drainage channels.
- Ensure that open stockpiles of construction materials are covered with tarpaulin or similar fabric during rainy season.
- Removal of soil vegetative cover should be kept at minimum and should only be carried out with absolute necessity.
• Stockpile of construction materials i.e. sand, ballast, stones etc. be placed away from drainage system.
• Monitor the natural flow system during heavy rains and make improvements where necessary.
• Clear any blocked drainage channels.
• Clear all soil residues/debris after trenching works.
• The proposed site for construction must be free from floods and should have adequate drainage to prevent effects of soil erosion and surface run-offs.
• Provide containments to used oils and also construct a bund wall to the generator set room (if any).
• Install grease trap or oil water separator.
• During construction stage sanitary waste shall be managed though mobile toilets and if need be, temporary pit latrines shall be constructed connected to sewer line.
• Establish drainage channels to ensure that surface runoff do not mix with effluent from the sanitary facilities.
• Wastewater shall be managed through proper disposal into Nairobi City Water and Sewerage Company Limited’s sewer line serving the project area.

6.4.8 Water use and increasing demand
These impacts will be rampant during the construction and operations phase of the project. Water use is connected to the construction and occupation activities. Water during construction phase will be sourced from boreholes to be sunk and supplemented by NCWSC. This trend is expected to continue and increase into the occupation phase of the project.

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<tr>
<td>Interpretation</td>
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Mitigation Measures
• During construction phase, use water economically to avoid wastage.
• Conducting regular water system audits to identify and rectify any possible water leakages.
• Used water can be sprinkled on the haulage road and dusty surfaces to reduce dust emissions.
• Provide additional source of water to reduce pressure on the existing water source. E.g. through rainfall harvest, and borehole drilling.
• Routine check-ups and monitoring of the drainage system to avoid leakages and blockages.
• Construction of separate storm water and waste water drain.
• Implement water saving devices in the ablution block use e.g. dual flush toilets, automatic shut-off taps, etc.
• The designs have water reservoirs for storage.
• Re-use or use recycled water for dust suppression
• Provide roof & storm water harvesting facilities connected to underground water storage tanks

6.4.9 Security and crime
These impacts are expected during all the project phases. Security will be critical to safeguard against externalities and petty theft by workers during construction phase.

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<td>Overall score</td>
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</table>

Interpretation: high

Mitigation Measures
• Sensitize construction workers, locals and security to be on the lookout on suspicious activities near the site.
• Proper design incorporating lighting to enhance security.
• Liaise with the administration units such as the police, chiefs and District Officers to provide regular surveillance and patrols to protect workers and the neighborhood.
• Conduct sensitization campaigns for the public on risks related to construction sites.
• Body search workers on entry, to avoid getting weapons on site and upon leaving site, ensure nothing is stolen.
• Ensure only authorized personnel get to the premise.
• Ensure security alarms are installed.

6.4.10 Traffic snarl-ups
These impacts are expected during all the project phases. From the onset, there will be increased vehicular movement in and out of the site. This project has conducted a Traffic Impact Assessment and it has ascertained that there will be pressure on the existing roads around the site only getting worse towards the occupation period. Construction period will be characterized by heavy motor vehicles leading and turning from and in to the site.

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<td>Overall score</td>
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</table>

Interpretation: high
Mitigation Measures

- Proponent has carried out Traffic impact Assessment and will devise a plan so as to reduce congestion as advised by the report.
- Provide reflective road signs on both sides of the working area at a distance not less than 50m from the works.
- Hire traffic marshal to control movement of trucks, heavy equipment, and machineries.
- Planned deliveries of materials.
- Proper display of warning signs such as ‘Road works ahead’, ‘slow down’ among others.
- Provide road diversions.
- Acquisition of traffic disruption permit from Traffic Police Authority whenever necessary.
- Expand the access road to accommodate both vehicular and non-vehicular traffic expected in the area.
- Contractor will develop and implement a traffic management plan to mitigate against possible accidents.
- Ensure road safety measures for the construction vehicles to the extent possible by observing all traffic regulations in the Traffic Act 2012.
CHAPTER 7: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

7.1 Introduction
An Environmental & Social Management and Monitoring Plan (ESMMP) translates the recommended mitigation and monitoring measures into specific actions that will be carried out by the proponent. Regular monitoring of environmental parameters is of immense importance to assess the status of environment during project operations. With the knowledge of baseline conditions, the monitoring programme will serve as an indicator for any deterioration in environmental conditions due to operation of the project, to enable taking up suitable mitigation steps in time to safeguard the environment. Monitoring is as important as that of pollution since the efficiency of control measures can only be determined by monitoring.

7.2 Management Plan Principles
This project is geared towards enhancing social and economic benefits to residents of Nairobi County and those willing to live and/or invest in Nairobi. The project should also observe environmental protection requirements in accordance to the established laws and regulations to ensure sustainability. To realize this goal, acceptability by a majority of the beneficiaries and minimal effects to the physical environment will require to be integrated in the project through constant consultations, evaluations and review of the design aspects throughout the project coverage.

Among the factors that need to be considered in this particular project implementation will include:
- Ensure occupational safety and health standards are upheld to reduce accident occurrence and human suffering.
- Enhance integration of environmental, social and economic functions in the project implementation,
- Consider preventive measures towards possible social and economic disruptions that may arise from the project implementation in accordance with the laid down guidelines,
- The proponent and other players in the project activities be prevailed upon to implement the EMP through a sustained supervision and continuous consultations

7.3 Specific Management Issues

7.3.1 Management Responsibilities
In order to implement the management plan, it is recommended that a supervisor is identified to oversee environment and safety management aspects during construction of the project.
project. The supervisor would also be expected to co-ordinate and monitor environmental management during construction and provide monitoring schedules during operations.

### 7.3.2 Environmental Management Guidelines

Upon completion and commissioning the project, it will be necessary to establish appropriate operational guidelines on environmental conservation and social linkages to enable the operations’ management identify critical environmental and social issues and institute appropriate actions towards minimizing associated conflicts.

Basically, the guidelines should cover among other areas environmental management programmes, standard operation procedures, compliance monitoring schedule and environmental audit schedules as required by law. Social harmony of the facilities and associated components will be achieved through collaborations with the stakeholders within the area.

### 7.3.3 Environmental Monitoring and audits

Environmental monitoring and audits are essential in a project’s life span as they are conducted to establish if project implementation has complied with set environmental management standards for Kenya as spelt out in EMCA 1999 & its Amendment Act, 2015, and the Environmental (Impact Assessment and Audit) Regulations 2003. In this project, environmental monitoring and audit will be conducted to ensure that identified potential negative impacts are mitigated during the project’s life span.

### 7.3.4 Decommissioning Process

The main purpose of decommissioning is to restore/rehabilitate the site to acceptable standards. The lifespan of the proposed project is expected to be approximately 100 years depending on the quality of workmanship and maintenance during occupation phase. This period of time is long and there may be many changes which may not be foreseeable including the technological and legal aspects. On the other hand, the decommissioning may also come earlier than the expected length of time due to various reasons like change in physical planning policy or the discovery/realization of a more optimal use of the land. It is therefore recommended that a decommissioning plan be prepared prior to decommissioning so that all aspects will be assessed at against the prevailing conditions and requirements.

The decommissioning will involve demolitions of the structures, removal of debris and landscaping. Particularly, the proponent will:

- Remove all underground facilities from the site
- Landscape the site to improve site appearance
- Remove All the equipment from the site
- Fence and signpost unsafe areas
- Backfill surface openings if practical
### Table 7.1: Construction & Operation Phase: Environmental and Social Management and Monitoring Plan

<table>
<thead>
<tr>
<th>No.</th>
<th>Nature of Negative social &amp; environmental Impacts</th>
<th>Mitigation Measures</th>
<th>Monitoring Requirements</th>
<th>Responsibility and time frame</th>
<th>Performance Indicators/targets to achieve</th>
<th>Cost per year (KES)</th>
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<tbody>
<tr>
<td>(i)</td>
<td>Seeking EHS approvals and permits from relevant bodies such as NEMA, DOSHS, WRA</td>
<td>The Proponent shall ensure that all pertinent permits, certificates and licences have been obtained prior to any activities commencing on site and are strictly enforced/ adhered to; The Contractor shall maintain a database of all pertinent permits and licences required for the contract as a whole and for pertinent activities for the duration of the contract</td>
<td>• Copies of the licences and permits to be kept on site and should be valid till project decommissioning phase.</td>
<td>• Contractor/proponent. • Pre-construction phase</td>
<td>• Number of approvals / permits issued</td>
<td>3,500,000</td>
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<tr>
<td>(ii)</td>
<td>Site clearance and waste management</td>
<td>• Scoping exercise revealed that the site was already cleared of any existing buildings. • Relocate or reroute any infrastructure facilities within the site • Obtain license for vegetation clearing. Only cut down trees at the specific affected part of the site. • Use of an integrated solid waste management systems; 1. Hierarchy of options, 2. Source reduction, 3. Recycling, compacting and reuse, authorized combustion and sanitary</td>
<td>• Objective worksheet and checklists</td>
<td>• Contractor/proponent • Pre-construction phase</td>
<td>• Filled and completed checklists</td>
<td>5,000,000</td>
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</table>
| (iii) Air Quality [Increase in airborne/ air emissions (vehicular exhausts), paint emissions (Volatile Organic Compounds, VOC), and dust emission from paved areas.] | • Dust generated from the access roads during movement of trucks/vehicles transporting construction materials should be abated by continuous sprinkling water on the road; drivers should also be instructed to minimize speed of at least 10km/hr.  
• Ambient Air quality measurements will be taken for monitoring purposes  
• The proponent will be responsible for maintaining construction equipment to minimize emissions.  
• Appropriate personal protective equipment (PPEs) must be provided to all site workers especially painters, welders etc. These include, respirators, dust coats, aprons, safety boots, head gears, hand gloves.  
• Construction equipment and vehicles will be turned off when not used for extended periods of time.  
• Emission of pollutants such as Carbon (IV) oxide, Carbon (II) oxide, and Sulphur IV oxide shall be averted by muffling the generator exhaust pipes and placing it in vertical position (if any).  
• Haulage trucks must be covered with | • Review log sheets and ensure regular servicing of the vehicles, equipment, and machines.  
• Regular misting of haulage road.  
• Records of provision of personal protective equipment.  
• Use of personal protective equipment in areas involving dust emission.  
• Ambient air quality measurements report | • Contractor/ proponent construction, operation & decommissioning phase)  
• Minimal complaints from the public visiting the site as well as project neighboring community.  
• Nil visible particulate matter in the air.  
• Results of air quality measurements against the required standards | 7,000,000 |
| (iv) | **Increased solid waste generation** | - The project proponent and contractor must ensure that collection bins/receptacles are placed at strategic locations within project site as transfer stations to facilitate separation and tarpaulin materials to minimize escape of particulate matter into the atmosphere.
- Screen off/cordon off the project site to minimize dust migration to nearby facilities by wind.
- Staff working in dust generating activities/areas e.g. site preparation, excavation, concrete mixing, stone dressing should be provided with personal protective equipment (PPE) and their use be enforced.
- Avoiding open burning of solid wastes during both operation and construction phase.
- Closing dust spot as far as possible in wet conditions.
- Setting up the cloth bag collecting system to reduce the environmental pollution from dust.
- Suitable screening and containment shall be in place to prevent windblown contamination associated with concrete mixing activities. |
| | | - Solid waste collection schedules.
- Waste segregation points.
- Waste receptacles
- Contractor/proponent
- During pre-construction, construction,
- Copies of contractual agreements with licensed waste handlers. | 2,500,000 |
| (v) | Public OSH concerns and Fire Hazards | sorting of various types of wastes.  
- The waste shall be properly segregated and separated to encourage reuse of some useful waste materials i.e. some stone and concrete materials can be used as backfills.  
- Contract a licensed waste handler to collect solid wastes which cannot be reused at the site.  
- Adopt the 3R waste management approach, that is (reduce, reuse and recycle) whereby waste shall be segregated – plastics, glass, tins, papers, wood, metals etc. (later to be re-used or recycled).  
- Avail color coded waste bins for source waste sorting at the project site.  
- All plastics and polybags should be collected by licensed recyclers |
|---|---|---|
| | | installed at intervals.  
- Documented particular care when handling hazardous waste.  
- Adequate waste receptacles.  
- Waste management plan in place. |
| | | A well-stocked first aid kit shall be availed on site and shall be managed by qualified persons.  
- Nominate an environment, health and safety officer to oversee all construction activities during project implementation process.  
- Provide appropriate personal protective equipment (PPEs) to all site workers. These shall include; respirators, dust |
| | | Presence of operation manuals.  
- Well stocked First Aid Kits.  
- An EHS Officer in charge of safety  
- Availability of PPE’s.  
- Workers in full PPE attire during working hours.  
- Contractor/proponent  
- EHS officer  
- Construction , operation& decommissioning phase. |
| | | Contractor/proponent  
- EHS officer  
- Construction, operation & decommissioning phase. |
| | |adequate fire extinguishers installed at intervals.  
- Presence of well stocked First aid kit boxes.  
- Well trained First Aiders.  
- Stock of PPEs for 10,000,000 |
| Coats, aprons, safety boots, head gears, hand gloves, ear muffs etc. | Servicing records for the plant, equipment, and machineries. |
| Ensuring that the operational manuals are available and accessible for every equipment /machinery used at the site during construction and operation phases. | Presence of serviced fire extinguishers. |
| Proper maintenance of all machinery and equipment to prevent premature failure or possible accidents. | Proper signage. |
| Ensuring all electrical equipment and machinery are properly guarded and grounded. | Well displayed OSH policy abstract at the workplace. |
| Only properly trained workmen to operate equipment or machinery and proper instructions on their safe operation provided. | Displayed emergency contact numbers for Fire. |
| Training programmes for temporary staff on how to safely handle construction equipment and machineries. | Presence of at least 10,000L water reservoir for fire safety. |
| Install firefighting equipment e.g. Fire extinguishers. | Statutory safety and health / fire safety audit reports. |
| Ensure all workers are conversant with basic fire safety techniques. | Speed limits and controls in place. |
| Ensure safe electrical installations of possibly exposed wires which can lead to short circuiting/electrical fires. | Evacuation procedures in place. |
| Provide emergency numbers at strategic locations. | Proper signage such as Fire Exits, No Smoking, Flammable Substances, etc. |
| | Statutory OSHA workers. |
| | OSH/fire Audit Reports by qualified safety advisor. |
| | Elaborate ERP in place. |
| | Adequate safety and informative signage. |
| | Number occupational of accidents. |
| | Training certificates for workers. |
points as well as adequate signage on fire action.

- Various measures should be taken to reduce possible fire outbreak e.g. warning signs, insulating electric wires exposed, hire electrician to manage electrical works.
- Provide containment of hazardous materials such as used oils, paints and the tins.
- Provide adequate protective gears to construction workers.
- Adherence to provisions of Occupational Safety and Health Act of 2007 and the rules formulated under it.
- Use signage to warn staff and/or visitors that are not involved in construction activities.
- Restrict non-essential staff from accessing the construction site.
- Supervision of works shall be done regularly to ensure that safety conditions are met while any deviation from safety regulations is immediately reclaimed following the best practices regarding safety at work.
- Develop evacuation procedures to handle emergency situations.
- Put up speed controls where necessary
(vi) **Noise and Excessive Vibrations**

- Limit the times of construction to daylight hours (8am-5pm).
- Erect signage to prohibit unnecessary hooting at the project site.
- Ensure that noise & excessive vibration from construction activities are within permissible levels as per the provision of Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009. This includes among others adhering to permissible noise levels.

- Timing working hours.
- Presence of noise protective gears for site workers.
- Noise measurements report

- Contractor/proponent
- Pre-Construction, construction, operation, & decommissioning phases.

- Erected noise prohibitory signage.
- Results of noise survey report

1,000,000
and vibration levels.

- Construction work should strictly be undertaken between permissible time periods as stipulated in the second Schedule – Maximum Permissible Noise Levels for Construction Sites of EMCA (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.
- Provide PPEs such as ear muffs to the contractors.
- Carry out baseline noise monitoring within the area before, during and after the construction works.
- Acquire noise and excessive vibrations emission permit from NEMA when undertaking excessive noise and vibration emitting activities.

(vii) **Surface drainage, wastewater and water pollution/contamination**

- Ensure that hazardous materials are handled and stored in a good manner, to limit their movement into the environment.
- Trenching during plumbing works should not interfere with the existing drainage channels.
- Ensure that open stockpiles of construction materials are covered with tarpaulin or similar fabric during rainy season.
- Removal of soil vegetative cover should

<table>
<thead>
<tr>
<th>Proper storage facility for hazardous materials if any.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle all hazardous materials as per the Hazardous Substances Rules of 2007.</td>
</tr>
<tr>
<td>The level of landscaping.</td>
</tr>
<tr>
<td>Tarpaulins placed over stockpiles to</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contractor/proponent</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHS officer</td>
</tr>
<tr>
<td>Construction, operation, &amp; decommissioning phase.</td>
</tr>
</tbody>
</table>

| Drainage channels free from solid wastes. |
| Zero or minimal siltation in nearby water bodies. |
| Color coded waste segregation bins installed and |

2,500,000
be kept at minimum and should only be carried out with absolute necessity.
- Stockpile of construction materials i.e. sand, ballast, stones etc. be placed away from drainage system.
- Monitor the natural flow system during heavy rains and make improvements where necessary.
- Clear any blocked drainage channels.
- Clear all soil residues/debris after trenching works.
- The proposed site for construction must be free from floods and should have adequate drainage to prevent effects of soil erosion and surface run-offs.
- Provide containments to used oils and also construct a bund wall to the generator set room (if any).
- Provide oil interceptors in the parking and garage areas of the development
- During construction stage sanitary waste shall be managed though mobile toilets and if need be, temporary pit latrines shall be constructed connected to sewer line.
- Establish drainage channels to ensure that surface runoff do not mix with effluent from the sanitary facilities.
- Wastewater shall be managed through prevent migration of grit to water bodies.
- Clear storm drains.
- Bund walls at the generator room.
- Effluent analysis test results at accredited laboratories.
- Presence of oil water separator and grease traps.
- Containments for used oils and other hazardous liquid waste.
- Established drainage channels to ensure that surface runoff do not mix with effluent from the sanitary facilities.
- Wastewater shall be managed through

| Prevent migration of grit to water bodies. |
| Clear storm drains. |
| Bund walls at the generator room. |
| Effluent analysis test results at accredited laboratories. |
| Presence of oil water separator and grease traps. |
| Containments for used oils and other hazardous liquid waste. |
### (viii) Vegetation Clearing, Soil Erosion and Sedimentation

- Adopt selective de-vegetation that aims at clearing only the project site where necessary.
- The proponent proposes to carry out landscaping of the area.
- Unnecessary felling of the existing trees should be avoided.
- Once the project lifespan ends, during decommissioning, the proponent shall replant the field with appropriate vegetative cover including indigenous trees.
- Planting trees, flowers and other green measures.

<table>
<thead>
<tr>
<th>(viii) Vegetation Clearing, Soil Erosion and Sedimentation</th>
<th>(ix) Water use and increasing demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Selective vegetation removal.</td>
<td>• Water consumption levels.</td>
</tr>
<tr>
<td>• Evidence of grass cover.</td>
<td>• Minimum leaks.</td>
</tr>
<tr>
<td>• Landscaping with indigenous and exotic vegetation (trees, flowers and grass).</td>
<td>• Presence of roof catchments.</td>
</tr>
<tr>
<td>• Contractor /proponent</td>
<td>• Reservoir tanks.</td>
</tr>
<tr>
<td>• Greening of the field.</td>
<td>• Contractor/proponent</td>
</tr>
<tr>
<td>• Number of tree stands replanted</td>
<td>• Construction, operation, &amp; decommissioning phase.</td>
</tr>
<tr>
<td>600,000</td>
<td>800,000</td>
</tr>
</tbody>
</table>

### (ix) Water use and increasing demand

- During construction phase, use water economically to avoid wastage.
- Conducting regular water system audits to identify and rectify any possible water leakages.
- Used water can be sprinkled on the haulage road and dusty surfaces to reduce dust emissions.

<table>
<thead>
<tr>
<th>(ix) Water use and increasing demand</th>
<th>(viii) Vegetation Clearing, Soil Erosion and Sedimentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Water consumption levels.</td>
<td>• Selective vegetation removal.</td>
</tr>
<tr>
<td>• Minimum leaks.</td>
<td>• Evidence of grass cover.</td>
</tr>
<tr>
<td>• Presence of roof catchments.</td>
<td>• Landscaping with indigenous and exotic vegetation (trees, flowers and grass).</td>
</tr>
<tr>
<td>• Reservoir tanks.</td>
<td>• Contractor /proponent</td>
</tr>
<tr>
<td>• Contractor/proponent</td>
<td>• Construction, operation, &amp; decommissioning phase.</td>
</tr>
<tr>
<td>• Water meters installed and reading recorded</td>
<td>• Greening of the field.</td>
</tr>
<tr>
<td>• Leak free taps.</td>
<td>• Number of tree stands replanted</td>
</tr>
<tr>
<td>800,000</td>
<td>600,000</td>
</tr>
<tr>
<td>(x)</td>
<td>Irresponsible social behavior</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td>HIV/AIDS prevalence and drug abuse within the project area</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
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<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| (xi) | **Security and Crime** | • Sensitize construction workers, locals and security to be on the lookout on suspicious activities near the site.  
• Proper design incorporating lighting to enhance security.  
• Liaise with the administration units such as the police, chiefs and District commissioners to provide regular surveillance and patrols to protect workers and the neighbourhood.  
• Conduct sensitization campaigns for the public on risks related to construction sites.  
• Body search workers on entry, to avoid getting weapons on site and upon leaving site, ensure nothing is stolen.  
• Ensure only authorized personnel get to the premise.  
• Ensure security alarms are installed. | • Presence of security personnel  
• Proper lighting | • Contractor/ proponent  
• Local police  
• Construction, operation and decommissioning phase | | 2,500,000 |
| (xii) | **Traffic snarl-up** | • Provide reflective road signs on both | • Presence of traffic  
• Contractor  
• Trained road | | 800,000 |
|   |   | sides of the working area at a distance not less than 50m from the works.  
• Hire traffic marshal to control movement of trucks, heavy equipment, and machineries.  
• Planned deliveries of materials.  
• Proper display of warning signs such as ‘Road works ahead’, ‘slow down’ among others.  
• Provide road diversions.  
• Acquisition of traffic disruption permit from Traffic Police Authority wherever necessary.  
• Expand the access road to accommodate both vehicular and non-vehicular traffic expected in the area  
• Contractor will develop and implement a traffic management plan to mitigate against possible accidents.  
• Ensure road safety measures for the construction vehicles to the extent possible by observing all traffic regulations in the Traffic Act 2012 |  
|   |   | marshal with flags.  
• Road signage installed such as heavy vehicles turning ahead, slow down, and reduce speed.  
• /proponent  
• Construction, operation & decommissioning phases.  
• No. of trained drivers and their valid driving licenses.  
• No of road safety and informative signage.  
• No. of road safety and informative signage.  
• Electricity bills | 400,000 | EIA Study report  
15
### Increased social conflict and security

- Sensitise workers and occupants on energy conservation
- Engage services of security guards
- Install manned CCTV cameras
- Post emergency and SOS numbers strategically throughout the project lifecycle.
- Encourage formation of community policing and formation of neighborhood associations eg "nyumba kumi"

<table>
<thead>
<tr>
<th>(xiv)</th>
<th><strong>Increased social conflict and security</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Accommodate the views raised during stakeholder meetings</td>
</tr>
<tr>
<td></td>
<td>- Engage services of security guards</td>
</tr>
<tr>
<td></td>
<td>- Install manned CCTV cameras</td>
</tr>
<tr>
<td></td>
<td>- Post emergency and SOS numbers strategically throughout the project lifecycle.</td>
</tr>
<tr>
<td></td>
<td>- Encourage formation of community policing and formation of neighborhood associations eg “nyumba kumi”</td>
</tr>
<tr>
<td></td>
<td>- Minutes of public meetings held</td>
</tr>
<tr>
<td></td>
<td>- Installed cctv</td>
</tr>
<tr>
<td></td>
<td>- Project proponent</td>
</tr>
<tr>
<td></td>
<td>- Residents</td>
</tr>
<tr>
<td></td>
<td>- no. of meetings held</td>
</tr>
<tr>
<td></td>
<td>- no. CCTV installed</td>
</tr>
<tr>
<td></td>
<td>1,500,000</td>
</tr>
</tbody>
</table>

### Environmental Training and Awareness

- The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of this EIA’s ESMP
- The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this EMP in his costs and programming
- An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project workers

<table>
<thead>
<tr>
<th>(xv)</th>
<th><strong>Environmental Training and Awareness</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of this EIA’s ESMP</td>
</tr>
<tr>
<td></td>
<td>- The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this EMP in his costs and programming</td>
</tr>
<tr>
<td></td>
<td>- An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project workers</td>
</tr>
<tr>
<td></td>
<td>- Attendance register</td>
</tr>
<tr>
<td></td>
<td>- Certificate of participation from a recognized institution</td>
</tr>
<tr>
<td></td>
<td>- Contractor/proponent</td>
</tr>
<tr>
<td></td>
<td>- Number of trainings conducted</td>
</tr>
<tr>
<td></td>
<td>1,000,000</td>
</tr>
</tbody>
</table>
### Contractor demobilization

- The site is to be cleared of all construction materials, including litter prior to hand over
- Fences, barriers and demarcations associated with the construction phase must be removed from the site
- All areas designated as hazardous waste/material storage must be remedied before handing over

- Demobilization checklist in the contractor’s ESMP
- Mentioned items in the checklist
- Filled checklist and handed over to the client.

<table>
<thead>
<tr>
<th>Budgetary requirement</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgetary requirement</td>
<td>42,900,000</td>
</tr>
<tr>
<td>Add 15% Contingencies &amp; miscellaneous</td>
<td>6,435,000</td>
</tr>
<tr>
<td>Approximate ESMP cost</td>
<td>49,335,000</td>
</tr>
</tbody>
</table>
Table 7.2: Decommissioning Phase: Environmental and Social Management and Monitoring Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Associated Impacts</th>
<th>Impact Levels</th>
<th>Management Actions</th>
<th>Target Areas &amp; Responsibilities</th>
<th>Monitoring Indicator</th>
<th>Budget (Ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition of structures</td>
<td>Injuries</td>
<td>high</td>
<td>• Use serviced machines and equipment</td>
<td>Project site proponent</td>
<td>Number of injuries</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Ensure all operators of machines are qualified</td>
<td></td>
<td>Certificates for the operators</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Provide training and supervision to construction workers</td>
<td></td>
<td>Service documents for the machines</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Provide PPEs and first aid facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid waste generation</td>
<td></td>
<td></td>
<td>• Ensure sound waste handling mechanism by use of registered waste handlers</td>
<td>Project site proponent</td>
<td>• Licenses for the waste handlers</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Provide PPEs to waste handlers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibrations and Noise</td>
<td></td>
<td></td>
<td>• adhere to excessive vibrations and Noise Prevention and Control Rules of 2009</td>
<td>Project site proponent</td>
<td>• public complaints</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• notify neighbours and other sensitive receptors before commencing the demolitions</td>
<td></td>
<td>• PPE register</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• provide training and PPE to workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrocution and spillages</td>
<td></td>
<td></td>
<td>• disconnect all the utilities from the building at the connection point to the site</td>
<td>Project site proponent</td>
<td>• Notification to the lead agencies tasked with provision of the utilities.</td>
<td>No direct cost</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>from the grid or main supply/connection.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destruction to adjacent</td>
<td></td>
<td></td>
<td>• Assessment of the adjacent structures to determine the structural integrity for</td>
<td>Project site proponent</td>
<td>• Report of assessment done and approved methodology by the engineer</td>
<td>To be determined</td>
</tr>
<tr>
<td>structures</td>
<td></td>
<td></td>
<td>better/informed approach to demolition methodology.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removal of Debris</td>
<td>Traffic hazards</td>
<td></td>
<td>• No overloading of trucks</td>
<td>Project site proponent</td>
<td>• Training records</td>
<td>TBA</td>
</tr>
<tr>
<td>Rehabilitation of the project</td>
<td>Occupational hazards</td>
<td></td>
<td>• Provide training and PPE to workers and drivers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>site</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Estimated Cost for EMP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TBA</td>
</tr>
</tbody>
</table>
7.4 **Decommissioning Flow Chart**

Housing Projects of such nature are designed to have an average stability of between 70-100 years after which minor renovations might be recommended, however, in the event that the proponent prefers to decommission the project the following steps should be considered. Complying with the provisions below provides for minimum impact of the project to the environment.

Table 7.3: Decommissioning Flow Chart

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Actor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Initiation</td>
<td>Proponent then</td>
</tr>
<tr>
<td></td>
<td>Development of an Objective Worksheet and checklist incorporating references, legal and policies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Undertake decommissioning audit</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Prepare Road Map for Decommissioning Design</td>
<td>Proponent then</td>
</tr>
<tr>
<td></td>
<td>Conduct design review to validate elements of the design and ensure design features are incorporated in the decommissioning design. Public consultations</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Prepare and Award Contract</td>
<td>Proponent then</td>
</tr>
<tr>
<td></td>
<td>Prepare a contract that incorporates validated project information and award to a contractor as per the Procurement rules. Decommissioning Plan is then prepared</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Execute Decommission Works</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>Implement design elements and criteria on the Project in accordance with specifications and drawings. Inspect during decommissioning and at Project completion to ensure that all design elements are implemented according to design specifications. Implement the provided EMP for this phase.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Non-Conformance, Corrective/Preventive Action</td>
<td>Proponent</td>
</tr>
<tr>
<td></td>
<td>Determine root cause</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Propose corrective measures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Propose future preventive measures.</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 8: PUBLIC CONSULTATION

8.1 Introduction

Public participation is basically concerned with involving, informing and consulting the public in planning, management and other decision-making activities. Public participation tries to ensure that due consideration is given to public values, concerns and preferences when decisions are made. It encompasses the public actively sharing in the decisions that government and other agencies make in their search for solutions to issues of public interest.

Public consultation in this project was seen to have started in year 2016. The literature review revealed that stakeholders to the project had already been identified and were engaged in different capacities. These stakeholders include; Project developers/proponent, the former residents of the Estate that constitute the Project Affected Persons (PAPs) and Nairobi County Government. The project proponents had already initiated consultations with the external stakeholders and the Project Affected Persons (PAPs) since the year 2016. Minutes were provided for the then meetings. It was also noted that the PAPs have been involved in all consultations and in agreement leading to their relocation.

Under this study, the consultants identified appropriate mechanisms for providing information on project activities and progress of project to stakeholders, assist in coordinating the environmental assessment with the relevant government agencies in obtaining the views of local stakeholders and affected groups.

It was also noted that compensation to PAPs to enable them relocate elsewhere as the project is completed, was already done and the site cleared. All relevant evidence of such agreements, minutes, views or any material engagements are incorporated in the proposed project design and documented in the EIA Study report.

8.2 Public Consultation objectives

The aim of public participation is to ensure that all the stakeholders likely to be affected or to influence the Project are identified and targeted as part of the EIA Study process. Public participation for this project was carried out with the following aims:

- To inform the project affected persons (PAPs) of the intended project that affects their livelihoods in a significant way.
- To inform the local people and other stakeholders about the proposed project and its objectives
- To seek views, concerns and opinions of the PAPs and people in the area concerning the project and incorporate the information in the ESIA study report.
- To establish if the local people foresee any positive or negative environmental effects from the project and if so, how they wish the perceived impacts to be addressed.

8.3 Public Consultation Methodology

The proponent and EIA team conducted public participation in the area in order to give the neighbours a platform of expressing their environmental and social concerns.
Consultations were carried out for a lengthy period of time. The following methods were used over time:

- Observations with the help of checklists at the time of preparation of this EIA Study
- Self-administered questionnaires during field visits to neighbouring dwellers
- Key informant interviews from the National Government / local administration
- Meetings held with stakeholders from the County Government administration and with neighbouring business community comprised of Juakali artisans since inception up to the preparation of this EIA study report.

8.4 Outcomes of Consultative Meeting

The proponent undertook consultations with individual PAPs including their residents association in a bid to sell the idea of the Government’s agenda. The other key stakeholder is the Nairobi County Government (NCG) whose purpose was to provide land and also interested in securing a portion of the housing to its eligible employees as described in chapter 2 of this report.

The main issues discussed during the interview are as summarized below;

- **Type of investment**: The type of development is proposed construction of blocks of fourteen storey mixed use, multi dwelling apartment with a live-work-play concept (See attached drawings). It was noted that the proposed Project is not unique in the area; similar apartments have been established in the area and are currently being viewed by targeted clients with an aim of being occupied.

- **Designs and drawing**: The proponent has provided the designs and drawings for the proposed development that incorporates the stakeholders views.

- **Project Positive Impacts**: The EIA will have positive impacts such as provision of affordable housing to residents of Nairobi, improvement of living standards of the wide range of middle and working class residents of the city, provision of jobs to the anticipated workers and the chain of materials sourcing, provision of business opportunities through direct and indirect trade, improved infrastructural facilities such as revamping of existing sewerage network within the area and rehabilitation of roads.

- **Project Negative Impacts**: Negative feedback given by the stakeholders include; displacement of the inhabitants and may cause suffering to those who may misuse the stipends given meant for renting elsewhere waiting for the completion of the project, traffic congestion around the area due to heavy vehicles turning, insecurity due to poor hoarding and incomplete structures especially at night, dust, noise and vibrations during the construction phase, increased demand for social and infrastructural services that may end up breaking down.

- **EIA impacts**: This EIA has proposed mitigation measures to reduce negative impacts associated with the Project on the environment and sensitive social receptors during both construction and operation phases. These impacts include noise abatement, waste management, reduction of visual intrusion, reduction of soil erosion, prevention of accidents and health hazards, firming up of security, revamping of infrastructure within and around the site and training of staff along public, environmental and safety issues.
Plate 8-1 Public Participation At Different Stages

Source: Field visit Jan Feb / documents from previous stakeholder participation meetings

*Attached to this EIA are copies of filled public participation questionnaires and minutes for previous consultative meetings.*
CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

9.1 Conclusion
The project is to be implemented within an area that is already developed into residential establishment of similar nature. The study noted that the proposed development is not out of character with the surrounding environment, as there area is experiencing gradual conversion from residential to high-density mixed-use multi-dwellings and therefore not in conflict with both human and natural environment in the area. Neighboring Pangani Estate is a good example where such development has been established.
The study noted that the area has sensitive social receptors such as schools and health facilities but with minimal environmentally sensitive ecosystems that are likely to be affected by the project. Therefore, the level of assessment was limited to the factors discussed in chapter 7 of this study.

9.2 Recommendations

The categorization of the project is high-risk Project which implies that projects presents potentially negative impacts on the environment and on the social conditions of those concerned. These impacts are significant and are hardly reversible but mostly localized. This ESIA has proposed adequate mitigation measures against the impacts and emphasized on strict adherence and monitoring during the project life cycle.

It is on the basis of these mitigation measures for the impacts identified in connection with the proposed project and the accumulated benefits that the ESIA team recommends a conditional EIA licence be issued for the project.
REFERENCES


Environmental Management and Coordination (Waste Management) Regulations, 2006, Government Printers,

Environmental Assessment Source Book, 1999 (World Bank);

Environmental Assessment Requirements, A guide for UN-HABITAT Activities;

Environmental Management and Co-ordination Amendment Act 2015 No5 of 2015


Kenya gazette supplement Acts Local Authority Act (Cap. 265) Government printer, Nairobi.

Kenya gazette supplement Acts Penal Code Act (Cap.63) Government printer, Nairobi


The Kenya Population and Housing Census report, 2019;

Plate 9-3 Site Characteristics

<table>
<thead>
<tr>
<th>Similar Neighboring development</th>
<th>Businesses near the site</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td>Infrastructure within the site (to relocate)</td>
<td>Infrastructure (access road and electricity near the site)</td>
</tr>
<tr>
<td><img src="image3" alt="Image" /></td>
<td><img src="image4" alt="Image" /></td>
</tr>
</tbody>
</table>

Source: Field visit January/Feb 2020
**ANNEXES**

<table>
<thead>
<tr>
<th>Annex</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annex 1</td>
<td>Land Ownership details</td>
</tr>
<tr>
<td>Annex 2</td>
<td>Architectural designs &amp; drawings</td>
</tr>
<tr>
<td>Annex 3</td>
<td>Minutes of previous consultations</td>
</tr>
<tr>
<td>Annex 4</td>
<td>Sample PAPs’ agreement with developer</td>
</tr>
<tr>
<td>Annex 5</td>
<td>Sample filled Public Participation questionnaire</td>
</tr>
<tr>
<td>Annex 6</td>
<td>Copy of Experts’ practicing Licenses</td>
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<tr>
<td>Annex 7</td>
<td>Approved Terms of Reference</td>
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