Environmental & Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region

**REPUBLIC OF KENYA**

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT PROJECT REPORT FOR THE CONSTRUCTION OF KITENGELA PARKING LOT IN KAJIADO COUNTY OF NAIROBI METROPOLITAN REGION

GPS Coordinates - Latitude 1° 28'37.67"S, Longitude 36°57'28.38"E

March 21, 2018

**PROPOSER**
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Certificate of Declaration and Document Authentication

This document has been prepared in accordance with the Environmental (Impact Assessment and Audit) Regulations, 2003 of the Kenya Gazette Supplement No.56 of 13th June 2003, Legal Notice No. 101.

This report is prepared for and on behalf of:

The Proponent
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NAIROBI – KENYA.

________________________________________  ______________________________________
Signature                                           Date

Lead Expert

Eng. Stephen Mwaura is a registered Lead Expert on Environmental Impact Assessment/Audit (EIA/A) by the National Environment Management Authority –NEMA (Reg. No. 7284), confirms that the contents of this report are a true representation of the Environmental & Social Impact Assessment of the proposed Construction of Kitengela Parking Lots in Kitengela Town of Kajiado County in the Nairobi Metropolitan Region. This report is issued without prejudice.

Lead Expert – Eng. Stephen Mwaura - (NEMA License No. 7284 Copy in this report)

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Signature                                           Date
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<th>Description</th>
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<tr>
<td>EA</td>
<td>Environment Audit</td>
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<td>ESIA</td>
<td>Environmental &amp; Social Impact Assessment</td>
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<td>EHS</td>
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EXECUTIVE SUMMARY

1. Introduction

This Environmental & Social Impact Assessment (ESIA) report was prepared as per the provisions of the Environmental Management and Coordination Act No. 8 of 2015, and the Environmental Impact Assessment Regulations 2003. It is also in line with the World Bank Safeguards Policies, OP4.01 (Environmental Assessment). These safeguard policies are a set of instruments to ensure that the Bank supported lending operations minimize any adverse impacts on local people, their livelihoods, culture and the environment and are a mandatory mechanism for evaluating Bank financed projects during design, implementation and completion, mainly through environmental and social impact assessments. This Project Report gives the findings of the Environmental and Social Impact Assessment Study undertaken as an integral part of the design and construction process. The project highlights salient social, economic and environmental issues associated with the design, construction and operational aspects of the proposed Kitengela parking lot in Kitengela Town of Kajiado County in the Nairobi Metropolitan Region.

2. Scope of the Project Report

This Environmental & Social Impact Assessment (ESIA) project report was prepared as per the provisions of the Environmental Management and Coordination Act No. 8, 2015 and more specifically to Environmental Impact Assessment Regulations 2003. It is also in line with the World Bank Safeguard Policies and specifically OP4.01 (Environmental Assessment). These safeguard policies are a set of instruments to ensure that the Bank supported lending operations minimize any adverse impacts on local people, their livelihoods, culture and the environment and are a mandatory mechanism for evaluating Bank financed projects during design, implementation and completion, mainly through environmental and social impact assessments.

The study process leading to this project report was further designed to address client expectations as stipulated in the Terms of Reference.

3. Objectives of the Project Report Study

The main objective of the study was to identify environmental and social impacts associated with the proposed Kitengela parking lot project and to recommend an appropriate environmental management strategy for the project. Thus, a core outcome of the study is an Environmental and Social Management and Monitoring Plan (ESMMP) for the project.

4. Study Approach and Methodology

The systematic investigative and reporting methodology specified for conduct of Project Report Studies (Legal Notice 101 of EMCA) was adopted in this study. Baseline data on project design was generated through discussion with the client and review of project documentation. Opinions formed were revalidated through field work entailing site investigations and interviews with potentially affected people and secondary stakeholders.
To identify, predict, analyze and evaluate potential impacts that may emanate from the project, diverse study methods and tools including use of checklists, matrices, expert opinions and observations were employed. An Environmental and Social Management and Monitoring Plan comprising of an impact mitigation plan and modalities for monitoring and evaluation were then developed to guide environmental management during all phases of project development. Once approved by the Ministry of Transport, Infrastructure, Housing and Urban Development and NEMA, the Project Report will be disclosed as required from where accruing comments will be used to finalize the report.

5. Policy, Legal and Regulatory Framework
This Project Report has been developed to ensure that the proposed construction of the Parking lot is in conformity with national policy aspirations towards securing sustainable development. Specifically, this report has been developed to ensure compliance with requirements of the Environmental Management and Coordination Act (EMCA) 2015-Kenya’s supreme environmental law and the National Constitution. Section 58 of EMCA requires that all proposed development in Kenya to be subjected to environmental impact assessment and to be conducted in line with the Second Schedule (of EMCA) and the Legal Notice 101 (Regulations for Environmental Assessment and Audit) of June 2003. The entire study process has been designed to conform to the regulatory framework stipulated by the National Environment Management Authority (NEMA) -the body that will review this report and make decisions on grant of an environmental license to the development.

6. Project Description
The proponent aims to construct a parking lot in Kitengela Town in Kajiado County of Nairobi Metropolitan Region. The design for the construction works will include excavation and removal of top soil and/or rock and back-filling with stone and finishing to paving blocks for use by parking of public transport and private vehicles. The works are located in Kitengela Township in Kajiado County on the earth road branching out of the main Nairobi-Namanga Road towards Athi River Prison, a distance of about 900 metres to the prison gate, but the works will be done on the first about 450 metres towards the prison gate. The proposed parking will cover an area of approximately 5200 square meters with about 120 parking slots. The current earth road is busy with vehicles entering and leaving, either to the prison at the far end of the road or to the commercial buildings on either side of the road mainly for transporting goods to or from the commercial enterprises. There is no displacement of people or interruption of livelihoods occasioned by this project.

7. Project Justification
The broad aim of the project is to ease vehicle parking congestion within Kitengela Township through providing space for parking of vehicles. The project will also improve the chaotic entrance by having orderly parking as well.

8. Scope and content of project
The works shall include but not limited to:
   (a) Site clearance and earthworks as necessary
   (b) Excavation to remove unsuitable materials
(c) Filling with approved materials as specified and directed.
(d) Hand packing with approved stone as specified and directed
(e) Base repairs as specified and directed
(f) Repairs to existing drainage structures as specified and directed
(g) Improvement/construction to the drainage facilities as directed
(h) Repairs and/or improvement/construction to footpaths and shoulders as directed
(i) Laying of bituminous/paving blocks standards on the existing earth sections
(j) Maintenance of the works during the construction and maintenance periods specified
(k) Traffic Management through the works and from the works
(l) Relocation and/or protection of other services including but not limited to water pipes, sewer pipes, street lighting, power and telephone
(m) Installation of lighting
(n) Provision of NMT facilities
(o) Any other works as instructed by the Engineer and/or as specified in this document

The project assessment investigates and analyses the anticipated environmental and social impacts of the proposed development in line with the Environmental (Impact Assessment and Audit) 2003 regulations.

9. Scope of environmental and social assessment

This Environmental & Social Impact Assessment (ESIA) Report considers the following aspects and others that may prove of significance during the study.

1. Assess the project’s impacts on ecology. This will in essence cover:-
   i. Impacts due to loss of vegetation cover, if any
   ii. Surface run-off water, containment and flood control.

2. Assess social implications of the development within the locality, region and nationally to include: -
   i. Economic implications of the development.
   ii. Security-threats, risk and enhancement.
   iii. Employment.
   iv. Livelihoods.
   v. Public health implications.
   vi. Demand and development of infrastructure and social amenities.

3. Assess the impacts of development on landscape and land use such as: -
   i. Determine the impact on change on civic shape, scenery, aesthetic modifications.
   ii. Examine the compatibility and complementarities of the development with the surrounding land uses
   iii. Examine the impacts of dumping of spoil
4. Assess the impacts of the development on power demands, water demands, and town congestion as well as possible impacts on surface run-off and ground water qualities and quantities, if any.

5. Impacts of safety during construction to passers-by and people going to and from the Athi River Prison and those involved in the businesses along the earth road. This is mainly because of increased traffic during construction requiring better traffic management plan during construction for the safety of workers, safety of motorists and safety of the shoppers, passers-by and those going to or leaving the prison.

6. Develop an Environmental and Social Management and Monitoring Plan (ESMMP) that would mitigate the possible impacts on the environment

7. Require the contractor to develop and apply a Contractor Environmental and Social Management Plan (CESMP) and Environmental Social Health Safety (ESHS) plan

10. Public Participation Process
Public participation and consultative forums were held at the site that included the neighbouring community, business community, area chief, area political leadership (Member of County Assembly of the Ward where the project is located attended the meeting) and county government. The aim of the consultative meetings was to obtain data related to the past and present operations of the parking lot that are significant to the future environmental status of the area, the management of the project both during and after implementation. The stakeholders numbering about 53 responded positively to the development as long as mitigation and mending up measures and waste management among others are developed and implemented simultaneously with the project. The record of the consultations is presented in this report in the form of questionnaires, attendance sheets and minutes of meetings held that had been administered to the stakeholders seeking their views on the project and especially as regards environmental and social management during project implementation.

11. Findings from the Study
(i) Potential positive impacts anticipated:
The core observation of this study is that the proposed parking lot construction project is aimed at reducing congestion in the main Kitengela town to improve traffic management and orderliness hence improving the broad transport sector. As such, the project in itself is already an activity in mitigation of an existing concern and this is the prime justification of the proposed investment. Other positive implications of the project will accrue from its potential to create short-term business and employment opportunities to both professional staff and workers during the design phase while, at construction phase, traders will benefit from opportunities to supply construction material while locals will be employed in the works. Upon commissioning, the project will afford motorists ample parking that will to some extent reduce the congestion in the main Kitengela Township.
(ii) Potential adverse impacts:
Construction activities will introduce nuisances such as dust, noise, vibrations and fumes which however can be effectively managed through shortening the construction period among other mitigation measures. Social vices associated with influx of job seekers can disturb the social order and even lay the ground for escalation of HIV/AIDS cases whose impacts are likely to be prolonged in prevalence. The land of the proposed construction of the parking lot is vacant and therefore there is no displacement of persons or any interruption of livelihoods. The notable potential negative environmental impacts that were identified include among others:

i. Air pollution due to noise, vibration and dust;
ii. Material sourcing and supply for the construction and maintenance works;
iii. Any effects from uncontrolled storm-water run-off;
iv. The project construction should also ensure management of influx of workers and other persons and adherence to local employment to manage this influx and to control any conflicts.

These have to be mitigated sufficiently for the project to progress. Mitigation measures include dust abatement, traffic management, and material sourcing from licensed quarries and borrow pits. The mitigation measures to manage these impacts are as identified in the Environmental and Social Management and Monitoring Plan (ESMMP) in this report.

(iii) Residual and cumulative impacts:
The project has no negative residual or cumulative impacts as all can be effectively mitigated.

12. The ESMMP
An ESMMP has been developed whose pursuit can greatly improve the overall net effect of the project. This report observes that the bulk of adverse impacts will manifest at the construction stage in which case, the core effort in mitigation will be concentrated in the contract for construction. This report therefore requires that the ESMMP be integrated into the design report with appropriate allocation of funds in the Bills of Quantities. The contract for construction should bear clauses binding the contractor to implement impact mitigation as part of the civil works. The NaMSIP’s PCT will mount own internal monitoring to ascertain environmental and social sensitivity at all stages of project development. During project development, a grievance redress mechanism will also be in place to handle all complaints and there will be creation of awareness and sensitization on HIV-AIDS. The project will also address other social areas that include child protection strategy, gender based violence and labor influx management. The ESMMP budget is estimated at about Kshs. 2,825,000. Moreover, this project’s potential benefits and positive impacts far outweigh the negative impacts.

12. Total Cost of the Project
Total cost of the project is approximated to be Kshs. 59,616,576 and a summarized bill of quantities is part of this report in the annexure.
## 13. Recommendations and Conclusion of this Project Report

In the view of this study, the project as currently proposed is environmentally sound. An ESMMP has been outlined to guide resolution of potential adverse impacts while enhancing the positive ones. Further, all negative impacts need to be mitigated and it is recommended that this project is granted NEMA licensing and other clearances to pave way for implementation.

Our conclusion is that the project is important for economic development of Kajiado County and has balanced environmental considerations and benefits. The ESIA team has given adequate measures to mitigate the negative impacts and a management plan proposed which the proponent should adhere to.
CHAPTER ONE
INTRODUCTION

1.1 Introduction and Project Objectives
Rapid urbanization has left Kenyan cities with huge unmet demand for critical infrastructure and basic services. Nairobi Metropolitan Service Improvement Project (NaMSIP) is part of a wide municipal development initiative by the Government and the development partners to address these problems. NaMSIP is an initiative of the Kenya Government with the support of the World Bank under the Country Partnership Strategy (CPS). Investment in infrastructure also contributes to the growth agenda by improving the competitiveness of Kenya’s cities as places to live and invest. NaMSIP is intended to improve services in the metropolitan area which are critical for economic development that include solid waste management, transport systems, storm water management, water supply and sanitation, disaster management and security/street lighting among many others. In addition, the implementation of the project will give the Ministry an opportunity to build its human resource and technical capacity in carrying out metropolitan-wide activities. NaMSIP is in line with the Government’s national development priorities and policies as well as ongoing public sector reform agenda. The project also supports strengthening of public sector management and accountability.

1.2 Study Approach and Methodology
The systematic investigative and reporting methodology specified for conduct of project report studies (Legal Notice 101 of EMCA) was adopted in this Study. Baseline data on project design was generated through discussion with the client and review of project documentation. Opinions formed were revalidated through field work entailing site investigations and interviews with potentially affected people and secondary stakeholders.
To identify, predict, analyze and evaluate potential impacts that may emanate from the project, diverse study methods and tools including use of checklists, matrices, expert opinions and observations were employed. An Environmental and Social Management and Monitoring Plan comprising of an impact mitigation plan and modalities for monitoring and evaluation were then developed to guide environmental management during all phases of project development.
Once approved by the Ministry of Transport, Infrastructure, Housing and Urban Development and NEMA, the report will be disclosed as required from where accruing comments will be used to finalize the report.
Consequently, this report provides the following;
- The location of the project including the physical environment that may be affected by the projects’ activities.
- The activities that shall be undertaken during the project design, construction, implementation and operation of the project
- The materials to be used, products and by-products including wastes to be generated by the project and the methods of disposal.
The potential environmental and social impacts of the project and mitigation measures to be taken during and after the implementation of the parking lot project.

An action plan for prevention and management of possible accidents during the project cycle

A plan to ensure the health and safety of the workers and the neighboring communities

The economic and social cultural impacts to local community.

The project cost – **Kshs. 59,616,576/00.** The ESMMP budget is estimated at about **Kshs. 2,825,000.**

Any other information that the proponent may be requested to provide by NEMA

This report also seeks to ensure that all the potential environmental and social impacts are identified and that workable mitigation measures are adopted. The report also seeks to ensure compliance with the provisions of the EMCA 2015, Environmental (Impact Assessment and Audit) Regulations 2003 as well as other regulations and World Bank OP4.12.

The report emphasizes the duties of the proponent and contractor during the construction phase as well as the operation phase of this project. All the materials and workmanship used in the execution of the work shall be of the best quality and description. Any materials condemned by the proponent shall be immediately removed from the site at the contractors cost.

The premises should also be planned to be landscaped and with adequate drainage facilities. Environmental concerns need to be part of the planning and development process and not an afterthought, it is therefore advisable to avoid land use conflicts with the surrounding area. To avoid unnecessary conflicts that retard development in the project area, the proponent undertook this ESIA and incorporated environmental concerns as advised by the Authority. Finally, a comprehensive Environmental and Social Management and Monitoring Plan (ESMMP) is mandatory for a project of this magnitude and nature because large quantities of solid wastes are likely to be generated with temporary interference to the general public and services during project execution. The proposed work at the parking lot includes upgrading the parking lot by removal of the underlying soil and replacing it with pavement of concrete works and paving blocks and concrete, allowing for drainage and other necessary works as per the bills of quantities. This is as described in the scope of works in this report and in the table below. This is the subject and objective of this ESIA.

### 1.3 Project Description and Justification

The works are located in Kitengela Township of Kajiado County. The project covers a total area of approximately 5200 square meters and will involve construction of about one hundred and twenty parking slots on the ends of the earth road that will also be upgraded. The broad aim of the project is to ease congestion within Kitengela Township and reduce traffic jam especially during peak hours. This will also enhance mobility and restore some order within the public transport sector.
1.4 Scope and content of project

The works shall include but not limited to:

- (p) Site clearance and earthworks as necessary
- (q) Excavation to remove unsuitable materials
- (r) Filling with approved materials as specified and directed.
- (s) Hand packing with approved stone as specified and directed
- (t) Base repairs as specified and directed
- (u) Repairs to existing drainage structures as specified and directed
- (v) Improvement/construction to the drainage facilities as directed
- (w) Repairs and/or improvement/construction to footpaths and shoulders as directed
- (x) Laying of bituminous/paving blocks standards on the existing earth sections
- (y) Maintenance of the works during the construction and maintenance periods as specified
- (z) Traffic management through the works and from the works
- (aa) Relocation and/or protection of other services including but not limited to water pipes, sewer pipes, street lighting, power and telephone
- (bb) Installation of lighting
- (cc) Provision of NMT facilities
- (dd) Any other works as instructed by the Engineer and/or as specified in this document

The project assessment investigates and analyses the anticipated environmental and social impacts of the proposed development in line with the Environmental (Impact Assessment and Audit) 2003 regulations, Legal Notice No. 101.

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**General GPS Coordinates**

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1.5 Description of the Project’s Construction Activities

1.5.1 Pre-construction investigations
The implementation of the project’s design and construction phase will start with thorough investigation of the site biological and physical resources in order to minimize any unforeseen adverse impacts during the project cycle.

1.5.2 Excavation works
Any unwanted wastes or debris arising from any excavations will be transported to licensed site for disposal.

1.5.3 Sourcing and transportation of construction materials
Construction materials will be transported to the project site from their extraction, manufacture, or storage sites using transport trucks. The materials to be used in construction of the project will be sourced from neighboring areas of Kitengela Town. Greater emphasis will be laid on procurement of construction materials from within the local area, which will make both economic and environmental sense as it will reduce negative impacts of transportation of the materials to the project site through reduced distance of travel by the materials transport vehicles.

1.5.4 Storage of materials
Construction materials will be stored on site, if need be. Bulky materials such as rough stones, ballast, sand and suchlike will be brought to site only when needed owing to space constraints. To avoid piling large quantities of materials on site, the contractor should order bulky materials such as sand, gravel and stones in batches.

1.5.5 Excavation and foundation works
Excavation will be carried out to prepare the site for construction of foundations, pavements and drainage systems. This will involve the use of heavy earthmoving machinery, human effort and appropriate equipment.

1.5.6 Construction
This involves putting the different layers – sub-base, base and final finish – in aggregates and a final finish in blocks as well as compaction as required of different levels.

1.6 Description of the Project’s Operational Activities

1.6.1 General repairs and maintenance
The parking lot will be repaired and maintained by Kajiado County Government during its operational phases.

1.7 Description of the Project’s decommissioning activities

1.7.1 Demolition works
Upon decommissioning (unlikely), the project components including pavements and drainage systems will be demolished. This will produce a lot of solid waste, which will be reused for other
construction works or if not reusable, disposed of appropriately by a licensed waste disposal company.

1.7.2 Site restoration

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

Photo of part of the site - Beginning of earth road that heads to the prison. The parking lot will involve upgrading the earth road and providing parking slots along the two sides of the road.
CHAPTER TWO

LEGAL, INSTITUTIONAL AND LEGISLATIVE FRAMEWORK

2.1 National, Legal and Institutional Framework

Kenya has approximately 77 statutes that guide environmental management and conservation. Most of these statutes are sector-specific, covering issues such as public health, soil conservation, protected areas conservation and management, endangered species, public participation, water rights, water quality, air quality, excessive noise control, vibration control, land use among other issues. The National Environment Management Authority (NEMA) in conjunction with various lead agencies studies proposed projects to ensure all aspects of the proposed project adhere to all Institutional Frameworks requirements. The institutional framework directly governing road development projects are: Environmental Management and coordination Act (EMCA) of 1999 and its subsequent supplements the Environmental (Impact Assessment and Audit) Regulation, 2003; EMCA (Waste Management) Regulations, 2006 and EMCA (Water Quality) Regulations, 2006; EMCA (Controlled Substance) Regulations, 2007; EMCA (Noise and Vibration Control) Regulations, 2009; EMCA (Emissions Control) Regulations, 2006; EMCA (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, 2009; EMC (Conservation of Biological Diversity and Resources, Access To Genetic Resources and Benefit Sharing) Regulations, 2006, Land Acquisition Act (Cap.295), Land Act Way Leaves Act (Cap. 292), Public Roads and Roads Access Act (Cap. 399), Forest Act, Physical Planning Act (CAP 286), Local Government Act (CAP 265), Traffic Act Chapter 295, Water Act 2002, Public Health Act (Cap. 242), Lakes and River Act Chapter 409, Wildlife Conservation and Management Act, Cap 376 and the Penal Code (Cap 63) 514. The project should adhere to these legislations.

2.2 Environmental Management and Coordination Act of 2015

This project report has been undertaken in accordance with the Environment (Impact Assessment and Audit) regulation 2003, which operationalize the environment management and coordination act 1999. The report is prepared in conformity with the requirements stipulated in the environmental management and coordination act no 8 of 1999 (EMCA) and the Environmental Impact Assessment and audit regulations 2003 regulation7 (1) and the second schedule. Part II of the said act states that every person is entitled to a clean and healthy environment and has the duty to safeguard the same. In order to achieve the goal of a clean environment for all, new projects listed under the second schedule of Section 58 of EMCA No 8 of 1999 shall undergo an Environmental Impact Assessment that will systematically examine the impacts to the environment by the projects as indicated in the second schedule of this Act and propose measures how the adverse or negative ones will be mitigated. This includes development activities such as this new project.

2.3 Occupational Health and Safety, 2007

The Occupational Safety and Health Act, 2007, is an Act of Parliament to provide for the safety, health and welfare of all workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. The Act applies to all workplaces and workers associated with it; whether temporary or permanent. The main aim of the Act is to safeguard the safety, health and welfare of workers and
non-workers. Part 9 states that the occupier or employer shall establish a health and safety committee where twenty or more people are employed and such an employee shall prepare a written statement of his general policy with respect to the safety and health at the work place. Further, the occupier shall prepare annual safety and health audits by a qualified person. The contractor shall adhere to all sections of this Act as it relates to this project, such as observing safety guidelines, ensuring sanitary conditions on site, provision of personal protective clothing, clean water, and insurance cover are observed so as to protect all from work related injuries or other health hazards. These provisions apply to this parking lots project.

2.4 Public Health Act Cap 242
Part IX section 115 of the Act states that no person or institution shall cause nuisance or condition liable to be injurious or dangerous to human health section 116 requires that local authorities take all lawful necessary and reasonable practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable to injuries or dangerous to human health. This will have to be provided for this project.

2.5 Physical Planning Act, 1999
The said Act section 29 empowers the local authorities to reserve and maintain all land planned for open spaces, parks, urban forests and green belts. The same section allows for prohibition or control of the use and development of an area. Section 30 states that any person who carries out development without development permission will be required to restore the land to its original condition. It also states that no other licensing authority shall grant license for commercial or industrial use or occupation of any building without a development permission granted by the respective local authority.

2.6 Land Planning Act Cap 303
Section 9 of the subsidiary legislation (the development and use of land Regulations 1961) under which it requires that before the local authority submits any plans to the minister for approval, steps should be taken as may be necessary to acquire the owners of any land affected by such plans. Particulars of comments and objections made by the landowners should be submitted, which intends to reduce conflict of interest with other socio economic activities.

2.7 Building Code 2000
Section 194 requires that where sewer exists, the occupants of the nearby premises shall apply to the Local Authority for permit to connect to the sewer line and all the wastewater must be discharged into sewers. The code also prohibits construction of structures or building on sewer lines.

2.8 Other Relevant Laws
2.8.1 EMCA (Waste Management) Regulations, 2006
These Regulations guides on the appropriate waste handling procedures and practices. It is anticipated that, the proposed project will generate large quantity of solid waste (mostly excavated top soil) during construction which will need to be managed through reuse, appropriate disposal. Others include solid waste from the generated from construction materials such as cement bags, bitumen, empty drums, among others. This regulation requires that:-

i. The contractor should not dispose any waste on the highway, street road, recreational area and public places;
ii. Waste should be segregated and grouped according to their similarity for example plastics, toxic, organic etc;

iii. All waste should be deposited in a designated dumping area approved by the local authority;

iv. All waste handlers engaged by the proponent should be licensed by NEMA and possess all relevant waste handling documents such as waste transport license, tracking documents, license to operate a waste yard, insurance cover, vehicle inspection documents among others;

v. Contractor should implement cleaner production principles of waste management strategy namely reduce, reuse and recycle;

vi. All hazardous wastes are labeled as specified in section 24 (1-3) of the regulation.

vii. The fourth schedule lists wastes considered as hazardous and solvents, emulsifiers/emulsion, waste oil/water and hydrocarbon/water mixtures. Road and parking lots projects involve use of inputs which are likely to generate the mentioned wastes and thus will need to be handled as required by the regulations.

This law requires that all wastes generated by this project in all its phases are managed in an environmentally friendly manner.

2.8.2 EMCA (Noise & Excessive Vibrations Control) Regulations, 2009

These Regulations provide guidelines for acceptable levels of noise and vibration for different environments during the construction and operation phase. Section 5 of the regulation warns on operating beyond the permissible noise levels while section 6 gives guidelines on the control measures for managing excessive noises and copy of the first schedule indicating the permissible noise levels for different noise sources and zones. The project team should observe the noise regimes for the different zones especially when working in areas termed as silent zones which are areas with institutions and worship places. These areas are permitted exposure to sound level limits of not exceeding 40 dB (A) during the day and 35 dB (A) at night. The regulation states that a day starts from 6.01 a.m. to 8.00 p.m. while night starts from 8.01 p.m. – 6.00 a.m. Construction sites near the silent zones are allowed maximum noise level of 60 dB (A) during the day and night levels are maintained at 35 dB (A). The time frame for construction sites is adjusted and the day is considered to start at 6.01 a.m. and ends at 6.00 pm while night duration from 6.01 p.m. to 6.00 a.m. Part III of the regulation gives guidelines on noise and vibration management from different sources. Sections 11, 12 and 13 of the stated part give guidelines on noise and vibration management from machines, motor vehicles and night time construction respectively. Section 15 requires owners of activities likely to generate excessive noise to conduct an ESIA to be reviewed and approved by NEMA. It is anticipated that the proposed project will generate excessive noise and/or vibrations due to earthworks and this noise will originate from the construction equipments, vehicles and the workers. This legal notice also requires that maximum permissible noise levels for construction sites be 75 dB(A) during the day and 60 dB(A) during the night. It is also required from this notice that no person shall make or cause to be made excessive vibrations which annoy, disturb, injure or endanger the comfort, repose, health or safety of others and the environment; or
cause to be made excessive vibrations which exceed 0.5 centimeters per second beyond any source property boundary or 30 metres from any moving source. It is therefore recommended that the construction team develops mitigations to reduce noise propagation in the project area and also ensure that the project works are only conducted during the day. It is also important that the vibrations are controlled.

2.8.3 EMCA (Air Regulations), 2014
This Act is meant to ensure that all activities at least maintain ambient quality standards of air and any pollution to air (in particulate matter, dust or obnoxious and poisonous gases) needs to be sufficiently mitigated. Dust generation may be mitigated by sprinkling water regularly and vehicle emissions need to be minimized through not running vehicles unnecessarily (no idling) and adequate vehicle maintenance. On this, World Bank and WHO standards require that PM$_{10}$, NO$_2$ and SO$_2$ do not exceed 50, 20 and 200 ug /m$^3$ respectively.

2.8.4 Way Leave Act Cap 292
Section 3 of the Act states that the Government may carry any works through, over or under any land whatsoever, provided it shall not interfere with any existing building or structure of an ongoing activity. Notice, however, should be given one month before carrying out any such works (section 4) with full description of the intended works and targeted place for inspection. Any damages caused by the works would then be compensated to the owner as per Section 8 of the Act that states that any person whom without consent causes any building to be newly erected on a way leave, or cause hindrance along the way leave shall be guilty of an offence and any alterations will be done at his/her costs.

2.8.5 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.

2.8.6 Traffic Act Chapter 403
This Act consolidates the law relating to traffic on all public roads. The Act also prohibits encroachment on and damage of roads including land reserved for roads. This Kitengela Parking lot project is under the provisions of the Act.

2.8.7 County Governments Act, 2012
This Act delineates the roles and responsibilities of county governments with their administrations as well as the role of county citizens in public participation and consultations regarding projects at the county level. CPP is part of this Parking lot project involving the county government and other stakeholders.

2.8.8 HIV Aids Prevention and Control (Cap 246A)
This Act is to promote public awareness about the causes, modes of transmission, consequences, means of prevention and control of HIV and AIDS. It also seeks to positively address and seek to address conditions that aggravate the spread of HIV infection. In the Kitengela parking lot project, there will be awareness creation and sensitization on the workers and other persons on the risks of infections and fostering prevention and control. It is also recommended that condoms for use by
workers will be availed at site to prevent infections as well as creation of awareness and sensitization on HIV-AIDS to prevent and control its spread and infections.

2.8.9 The Water Act, 2002
The Act vests the water in the State and gives the provisions for the water management, including irrigation water, pollution, drainage, flood control and abstraction. It is the main legislation governing the use of water.

The proposed project shall require some quantities of water during the construction phase and generation of equally large volumes of surface run-off during operations. The water supplied by the local water provider and local rivers might be the sources of water for construction. Any water body near the project will be receiving bodies for the surfaces run-off, as all the drainage systems shall be designed to discharge into them.

The contractor shall ensure that there will be no pollution to the nearby drainage system, and will seek the necessary permits to abstract the water from the rivers, or any other sources, and shall abide by the conditions attached to the permit(s).

These Rules are described in Legal Notice Number 171 of the Kenya Gazette Supplementary Number 52 of 2007. They apply to all water resources and water bodies in Kenya, including all lakes, water courses, streams and rivers, whether perennial or seasonal, aquifers, and shall include coastal channels leading to territorial waters.

The Water Resources Management Rules empower Water Resources Management Authority (WRMA) to impose management controls on land use falling under riparian land. It also enables any person with a complaint related to any matter covered by these rules to the appropriate office in WRMA as per the Tenth Schedule which provides a format for report on complaints. WRMA is to reply to the complainant with “copies to all other relevant parties within twenty one days of receiving the complaint, starting with what action is being taken, the position of the Authority on the matter and any recommendation to the complainant.”

The contractor shall seek the necessary permits to abstract the water from the rivers, or any other sources, and shall abide by the conditions attached to the permit(s).

The contractor/proponent will adhere to the provision of this regulation by obtaining relevant water permit from WRMA or consult with the relevant Water and Sewerage Company for its water sources.

2.9 National Policy Framework
Several policies have been developed over the years to guide the development and management of proposed projects to ensure both economic and social sustainability these policies are discussed below.

2.9.2 The National Poverty Eradication Plan (NPEP)
The objective of the NPEP is to reduce the incidences of poverty in both rural and urban areas by 50 percent by the year 2015, as well as to strengthen the capabilities of the poor and vulnerable groups to earn income. It also aims to narrow gender and geographical disparities and create a healthy, better-educated and more productive population. This plan has been prepared in line with the goals and commitments of the World Summit for Social Development (WSSD) of 1995.
The plan focuses on the four WSSD themes of poverty eradication; reduction of unemployment; social integration of the disadvantage people and creation of an enabling economic, political, and cultural environment which can be achieved through developing the transport and communication sector. The plan will be implemented by the Poverty Eradication Commission (PEC) formed in collaboration with Government ministries, Community Based Organization (CBO), private sector, Non-Governmental Organization (NGO), bilateral and multilateral donors.

2.9.3 The Poverty Reduction Strategy Paper (PRSP)
The PRSP has the twin objectives of poverty reduction and enhancing economic growth. The paper articulates Kenya’s commitment and approach to fighting poverty; with the basic rationale that the war against poverty cannot be won without the participation of the poor themselves. The proposed project through improving transport in the area will, contribute towards economic growth, as well as relieve the daily pressure of poverty for sustainable number of people by enabling them reach the markets and suppliers on time.

2.9.4 National Environmental Action Plan (NEAP)
The NEAP for Kenya was prepared in mid 1990s. It was a deliberate policy whose main effort is to integrate environmental considerations into the country’s economic and social development. The integration process was to be achieved through multi-sectoral approach to develop a comprehensive framework to ensure that environmental management and the conservation of natural resources forms an integral part of societal decision-making. The application of this plan is widening as the government through NEMA does not approve a development project unless the impacts of the proposed project are evaluated and mitigation measures proposed for incorporation in the project’s development plan which is in line with the requirements of the NEAP.

2.9.5 Environmental and Development Policy (Session Paper No.6 1999)
As a follow-up to the foregoing, the goal of this policy is to harmonize environmental and developmental goals so as to ensure sustainability. The paper provides comprehensive guidelines and strategies for government action regarding environment and development. It is recommended that the requirements of this policy are observed, as much by:

i. Taking measures to enhance the water catchment by replanting trees, using clean energy to reduce deforestation;

ii. Undertaking environment friendly practices during project implementation;

iii. Take measures to reduce pollutants leading to eutrophication of water bodies both above- and underground water bodies; and

iv. Rehabilitate project affected areas and public infrastructure among other

2.9.6 International Policy Framework
Kenya is a signatory as well as a party to various international conventions, treaties and protocols relating to the environment which aims at achieving sustainable development. According to the Registrar of International Treaties and other Agreements in Environment (UNEP 1999), there are 216 treaties, 29 of which are of interest to Kenya. The country is a signatory to 16 such agreements, which range from use of oil, protection of natural resources and protection of the atmosphere. The agreements are both regional and international and became legally binding on Kenya upon
ratification thereof by the rightfully designated Kenyan Authority. The agreements of interest to Kenya can be categorized as those for protecting natural resources, atmosphere and social wellbeing of man.

2.9.7 The National Environment Management Authority

The responsibility of the National Environmental Management Authority (NEMA) is to exercise general supervision and, co-ordination of all matters relating to the environment and to be the principal instrument of government in the implementation of all policies relating to the environment. The Authority shall review the project report for the proposed project, visit the project site to verify information provided in the report and issue an ESIA license if it considers that all the issues relevant to the project have been identified and mitigation measures to manage them proposed.

2.10 World Bank Environmental and Social Safeguard Policies

Like in any project financed by, or with financial participation of, the World Bank, the environmental and social safeguards as defined in the Bank’s Operational Procedures (OPs) will be respected for the purposes of this project implementation. The WBG EHS guidelines as stipulated by the Bank should be strictly adhered to in this project and the more stringent between the Bank’s and local legislation should be complied with.

WB classifies its projects into four Environmental Assessment categories according to the likely impacts on the environment they will have. This classification is as follows (only main conditions mentioned):

(a) Category A: A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts.

(b) Category B: A proposed project is classified as Category B if it’s potential adverse environmental impacts on human populations or environmentally important areas—including wetlands, forests, grasslands, and other natural habitats—are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigatory measures can be designed more readily than for Category A projects. **This particular NaMSIP subproject has been categorized as B.**

(c) Category C: A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project.

(d) Category FI: A proposed project is classified as Category FI if it involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts; this case, in any way, is not applicable to the NaMSIP project.

The table below shows the applicability of World Bank Operational Safeguards as it applies to this construction of this Kitengela parking lot in Kajiado County of Nairobi Metropolitan Region.

**Table 1: Applicability of WB OPs**
<table>
<thead>
<tr>
<th>OP</th>
<th>Title</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.01</td>
<td>Environmental Assessment</td>
<td>Applicable. As a result of environmental and social screening, the project was identified as Category B</td>
</tr>
<tr>
<td>4.04</td>
<td>Natural Habitats</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.09</td>
<td>Pest Management</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.10</td>
<td>Indigenous Peoples</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.11</td>
<td>Physical Cultural Resources</td>
<td>Not applicable. Site visits and inventories have not indicated the presence of any cultural (historical, archaeological) sites in the proposed land. However, to manage “chance finds” an appropriate procedure is included in this ESIA. Such procedure must be followed by the Contractor during the construction phase.</td>
</tr>
<tr>
<td>4.12</td>
<td>Involuntary Resettlement</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>4.36</td>
<td>Forests</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.37</td>
<td>Safety of Dams</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>7.50</td>
<td>Projects on International Waterways</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>7.60</td>
<td>Projects in Disputed Areas</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
CHAPTER THREE

BASELINE INFORMATION OF THE STUDY AREA

3.1 Physical Environment

Kitengela is a town located in Kajiado County in the former Rift valley province just 30 kilometers south of Nairobi. The town is part of the Nairobi Metropolitan Area and is one of the 13 urban centres. The proposed location of the proposed parking lots is of fairly flat topography and sloping gradually towards the Athi River GK Prison joined by an earth road that adjoins from the main Kitengela-Namanga Highway. The area for the proposed parking lots is currently unoccupied with vehicles haphazardly packed most of the days. The land belongs to the County Government of Kajiado.

3.1.1 Climate

Data from nearest weather station: Nairobi, Kenya (30.2 KM) from Kitengela indicates that the climate in Kitengela is warm and temperate according to the Köppen-Geiger climate classification. The temperature here averages 16.7 °C. In a year, the average rainfall is 865 mm. Most rainfall (rainy season) is seen in April, May, November and December. Kitengela has dry periods is the coolest month is August. April is the wettest month and July is the driest month. The figures below present summary of climate data for Kitengela area.

Figure 3-1: Mean Monthly Rainfall

Source: weather-and-climate.com 2016-Kitengela
The driest month is August, with 6 mm of rain. In April, the precipitation reaches its peak, with an average of 138 mm.

**Temperature**

The monthly mean minimum and maximum daily temperatures indicate that March is the warmest month of the year. The temperature in March averages 20.9 °C. At 16.9 °C on average, July is the coldest month of the year.

**Figure 3-2: Mean Monthly Temperature**

*Source: weather-and-climate.com 2016-Kitengela*

![Temperature graph showing monthly mean temperatures from January to December with March being the warmest month and July the coldest month.](image)

**Figure 3-3: Average humidity over the year**

*Source: weather-and-climate.com 2016-Kitengela*

![Relative humidity graph showing average humidity from January to December with values ranging from 20% to 100%.](image)
Environmental & Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region

3.1.2 Topography and Physiographic Features
The main physical features of Kajiado County are plains, valleys and occasional volcanic hills ranging from an altitude of 500 metres above sea level at Lake Magadi to 2500 metres above sea level in Kitengela Hills. Topographically, the county is divided into three different areas namely Rift Valley, Athi Kapiti Plains and Central Broken Ground. The Rift Valley is a low depression on the western side of the county running from north to south. It is made up of steep faults giving rise to plateau, scarps and structural plains. The depression has important physical features such as Mount Suswa and Lake Magadi. The lake has substantial deposits of soda ash and it is commercially exploited. The altitude ranges between 600 and 1740 metres above sea level.

The Athi Kapiti Plains consist mainly of gently undulating slopes, which become rolling and hilly towards the Kitengela hills. The altitude ranges from 1580 to 2460 metres above sea level. The hills are the catchment areas for Athi River, which is fed by Mbagathi and Kiserian tributaries.

The Central Broken Ground is an area stretching 20-70 kilometres wide from the north-eastern boarder across the county to the southwest where altitude ranges from 1220 to 2073 metres above sea level.

Figure 3-4 below presents the elevation map of Kitengela generated using elevation data from NASA’s 90m resolution SRTM data.
3.1.3 Hydrology
Water is scarce as there are no perennial rivers. Water can be obtained from the river bed of the Kajiado River, but much of the population in this area depends on boreholes. The most accessed horizons are the biotite gneisses, or the contact between the metamorphic rocks and the volcanics.

3.1.4 Geology and Soils
The volcanic rocks in the area are represented by Upper Athi Series consisting of sediments and Lake Beds, Athi Tuffs and Kapiti phonolite. The thickness of these volcanics varies but generally decreases towards the south and southeast as they reach the limit of the lava flows. Below the volcanics are the undifferentiated crystalline rocks of the Mozambique Belt that is the Basements System rocks consisting mainly of gneisses and schists. These are shallow seated and have been encountered by several of the numerous Boreholes drilled in the vicinity of the area. The geological succession underlying the project area consists of the Cenozoic volcanics which, in geo-chronological order, consists of the following formations:

- Upper Athi Series
- Kapiti Phonolites
- Basement System.

**Upper Athi Series**
The Upper Athi Series forms part of the extensive Athi tuffs and lake beds. Its occurrence is as a result of consolidation of fragmental volcanic material which was deposited shallowly into water after eruption. Geaverts, 1964, classify the series as all the sediments and tuffs lying between the Nairobi and the Kapiti phonolite. They are taken to include beds of the Kerichwa Valley series where the phonolite and trachytes are absent. The extensive occurrence of the series in the area indicates the former presence of an extensive swampy country. The presence of chert deposits indicate periods of quiescence during deposition while the contorted bands and slump structures may be due to tremors and movements during the same period. The Upper Athi series consists mainly of sandy sediments, tuffs and welded tuffs, with clays being subordinate.

**Kapiti Phonolite**
Wherever the contacts of the Kapiti Phonolite are present, the unit underlies associated volcanic rocks and is consequently the oldest lava of the succession. This has been confirmed by numerous borehole sections, which reveal that the sub-volcanic floor over which the Kapiti Phonolite was extruded was irregular and cut in Precambrin rocks. The lava was laid down on an eroded surface covered in places by Tertiary conglomerates and grits (Fairburn, 1963), formed part of the first Miocene flood eruptions. The rock is distinctive in hand specimens by its large white crystals of feldspar and waxy looking nephelines which are set in a fine grained dark green to black or dark bluish-grey groundmass. This is the oldest lava flow in the area and lies directly on the Basement. The Kapiti phonolite is exposed in the south-eastern corner of the area in Athi River Township. The outcrops are not extensive and are confined mainly to the valley of Athi River, Stony Athi and along Kitengela River.
3.2 Biological Environment

The area proposed for the construction has little or no flora as it has long been cleared to pave way for the earth road that heads to the prison. The town also has a lot of roaming cows and goats and most of the animal husbandry is a pastoralist or semi-pastoralist activity. Dairying, which may involve paddock systems and zero grazing, is also practised around Kitengela.

3.3 Social Environment

3.3.1 Demographics

The human population within Kitengela area has more than doubled in the last 10 years, from 6548 in 1889 to 17,347 in 1999 to 58,167 in 2009. The actual and projected population of Kitengela Town is as shown in the following table.

<table>
<thead>
<tr>
<th>Urban Centres</th>
<th>2009</th>
<th>2015</th>
<th>2017 (Projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>Kitengela</td>
<td>30088</td>
<td>28079</td>
<td>58167</td>
</tr>
</tbody>
</table>

Kitengela town holds more of the urban population than any other town in the county with 41 percent of the total. The other towns are Kitengela with 23 percent, Ongata Rongai with 16 percent and Kajiado with 6 percent. The male urban population (50.4 percent) is more compared to Female urban population (49.6 percent).

3.3.2 Land use

Land is mainly used for livestock rearing and crop growing. There is a significant change in land use in Kitengela where industrial and commercial use is gaining momentum. There is growing level of land speculation in the urban areas of the county, leading to excessive subdivision of land to small and sometimes uneconomical plots.

3.3.3 Infrastructure

The project site is located in Kitengela Town in Kajiado County South of Nairobi. The area is growing constantly with rapid developments of large estates, industries, intensive farming and institutions. Kitengela town and its environs have business premises developing rapidly. These include shopping malls such as Eastmatt, Tuskys , Naivas and banks (National, Equity, KCB, DTB, Family bank among others ). There are also numerous cybers cafes boutiques, and petrol stations, Due to such rapid urban growth, provision of basic infrastructure for all has become an important concern of development planners in Kitengela. Basic infrastructural services that have deteriorated due to such rapid increase in population include: solid waste management (SWM) system; water and sewage systems; drainage and flood protection from Kitengela Hills; roads and vehicles parking; transportation; and telecommunications. Greater environmental pollution, congestion and other problems have been the result of under-provision of such basic services.

A key landmark is the Kobil Petrol Station whose annex houses the popular pizza place and Standard Chartered Bank. These are not far from the project site.
3.3.4 Livelihoods

The larger Kitengela area is a semi-urban area with a range of households which on average, family sizes have been shrinking, more children are going to school and for longer, and land and herd sizes are smaller than before. One half of the cattle are owned by the 20% of households with the highest income earning more than US$ 4,842/year/household, or US$13/day/household. The lowest income households on the other hand, own 11% of the cattle and earn less than US$ 1,917/year/household, or US$ 5/day/household. Despite the fact that cattle ownership is not equally distributed livestock-related earnings (including the value of the meat and milk they consume) still account for over 50% of incomes across all income categories. Poorer households actually have more income sources than the wealthier ones, although non-livestock earnings are considerably lower and from less reliable sources. Higher income earning households have a larger proportion of their income coming from wages and business, for example, while those in the lower ones depend more on petty trading and other informal sector activities to help them diversify their incomes. Such trading and commercial activities are conducted in Kitengela town – butcheries, hardware shops, clothes shops and Kitengela market where groceries, fruits, second-hand clothes, kitchen utensils, shoes are sold - where the proposed project will be done. Other personnel are engaged in the petrol stations, eateries, shopping malls and banks in the town to earn their livelihoods.
CHAPTER FOUR

PUBLIC PARTICIPATION AND CONSULTATION

4.1 Introduction

Legal Notice 101 of EMCA 2015 (The Environmental Regulations, 2003) requires that all environmental assessment process in Kenya to incorporate public participation and consultations. The aim is to ensure that all stakeholder interests are identified and incorporated in project development, implementation and operation. Of necessity, stakeholder consultations should take place alongside project design and implementation to ensure that the project puts in place measures to cater for stakeholder concerns in all project phases.

4.2 Approach to Public Participation and Consultations

In case of the proposed Kitengela parking lot project, public participation and consultations followed these steps:

1) Identification of Stakeholders

Like in all civil works projects, the core stakeholders comprised people to be directly served by the parking lot and include members of the surrounding community (mainly business owners along the current earth road), matatu and bus drivers and their conductors and owners of private vehicles. This is the group that is likely to benefit or be affected by the proposed development hence the primary stakeholders. This study also identified a second category of stakeholders comprised of County Government officers who are likely to be impacted by the parking lot construction project. This category was also consulted as key informants on sectoral policy and to advise this ESIA study on mitigation measures to be put in place so as to minimize adverse impacts in respective sectors. Each category of stakeholders called for a different approach to consultation.

2) Modalities for stakeholder consultation

The following techniques and instruments were used for public participation and consultation;

- Photography and direct observation

Photography was particularly useful as it captured the real situation on the ground that was relevant to the study. Direct observation involved site viewing of the proposed project location as well as observing those who participated in the interviews.

- Interviews

Interviews and stakeholder engagements were carried out in the form of a public meeting where attendance sheets were filled in and minutes of meeting taken. It also included filling in of questionnaires to solicit views regarding this project from these persons. The status of the project as well as its design was disclosed to the stakeholders at this point. The questionnaire initially gave introduction and created awareness to these stakeholders of the proposed project. Afterwards, the
ESIA team enquired on the acceptance of the project and whether the project would cause any negative impacts on the following:

a) Local residents and their businesses; b) Ecology of the area; c) Human environment; d) Recreational and leisure facilities; e) Public health and safety; f) Effect on water resources and quality; g) Effect on the soils; h) Effect on road transport and; i) Waste disposal. The said parameters were directly mentioned to foresee which could have intense negative impact.

4.3 Issues Raised

The issues raised in the public meeting included the following:

<table>
<thead>
<tr>
<th>Plenary</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Isaac Otieno requested that casual jobs be given to the locals once the project commences.</td>
<td>Eng. Mwaura assured them the contractor is usually advised to use local labor.</td>
</tr>
<tr>
<td>Mr. Bernard Mwendo said that the project should be for the benefits of the residents of Kitengela.</td>
<td>The area MCA, Hon Kaesha said that a project management team shall be set up to look into that.</td>
</tr>
<tr>
<td>Mr. Edwin Odhiambo asked whether drainage and storm water management shall be taken care of by the project.</td>
<td>Eng. Malika said that the project will definitely improve the face of Kitengela town besides bringing job opportunities to the residents.</td>
</tr>
<tr>
<td>Mr. Longton Jamil asked how the county government shall safeguard the cabro paving blocks from overloaded vehicles since this would destroy the cabro paving blocks.</td>
<td>Eng. Mwaura assured the stakeholders that all the drawings were ready and all factors of storm water management have been taken into consideration.</td>
</tr>
<tr>
<td></td>
<td>Eng. Malika assured them that, together with the office of the sub county administrator, Kajiado East measures shall be put to ensure that no overloaded vehicle uses the road and the parking is only designated for parking.</td>
</tr>
</tbody>
</table>

Further issues are as reflected in the minutes of meetings in the Annexure. The attendance sheets, questionnaires and minutes of meeting for CPP are as attached in this report.
Plate of Photographs of the Public Participation and Consultation Meetings Held at Site
CHAPTER FIVE

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

5.1 Introduction
This chapter outlines the potential negative and positive impacts that will be associated with the parking lot project. The impacts will be related to activities to be carried out during construction of the project and the operation stage of the project. The operational phase impacts of the project will be associated with the activities carried out within the premises. In addition, closure and decommissioning phase impacts of the parking lot project are also highlighted. The impacts of the project during each of its life cycle stages (construction, operation and decommissioning) can be categorized into: impacts on the biophysical environment; health and safety impacts and socio-economic impacts.

5.2 Sensitive Receptors
Several businesses and shops on either side of the earth road of the proposed parking lot construction and a boda-boda stage at the entrance from the main highway are key receptors of the negative impacts of noise during construction and possibly dust and vehicle emissions.

5.3 Negative environmental impacts of construction activities

5.3.1 Extraction and use of construction materials
Construction materials such as rough stone, ballast and bitumen required for construction of the parking lot project will be obtained from quarries and bitumen dealers. Since substantial quantities of these materials will be required for construction of the parking lot, the availability and sustainability of such resources at the extraction sites will be negatively affected, as they are not renewable in the short term. In addition, the sites from which the materials will be extracted may be significantly affected in several ways including landscape changes, displacement of animals and vegetation, poor visual quality and opening of depressions on the surface leading to several human and animal health impacts.

5.3.2 Dust emissions
During construction and transportation of materials, the project may or will generate substantial quantities of dust at the construction site and its surrounding. The sources of dust emissions will include excavation and leveling works, and to a small extent, transport vehicles delivering building materials. Emission of large quantities of dust may lead to significant impacts on construction workers and the local residents, which will be accentuated during dry weather conditions.

5.3.3 Exhaust emissions
The trucks used to transport various building materials from their sources to the parking lot project site will contribute to increases in emissions of SO₂, CO₂, NO₂ and fine particulates along the way as a result of diesel combustion. Such emissions can lead to several environmental impacts including global warming and health impacts. Because large quantities of building materials are required, some of which are sourced outside Kitengela, such emissions can be enormous and may affect a wider geographical area. The impacts of such emissions can be greater in areas where the materials are
sourced and at the construction site as a result of frequent running of vehicle engines, frequent vehicle turning and slow vehicle movement in the loading and offloading areas.

5.3.4 Noise and vibrations

The construction works, delivery of construction materials by heavy trucks and the use of machinery/equipment including bulldozers, generators, tippers and concrete mixers will contribute to high levels of noise and vibrations within the construction site and the surrounding area. Elevated noise levels within the site can affect project workers and the residents, passers-by and other persons within the vicinity of the project site. The movement of trucks and other equipment in the project area during the works implementation will cause noise and dust if the works will be in dry weather. This noise and dust may also affect the commercial businesses along the vicinity of the construction works.

5.3.5 Risks of accidents and injuries to workers

Because of the intensive engineering and construction activities including concrete work, construction workers will be exposed to risks of accidents and injuries. Such injuries can result from accidental falls, injuries from hand tools and construction equipment and risk of vehicular accidents.

5.3.6 Increased soil erosion

Excavation works associated with this project may lead to increased soil erosion at the project site and release of sediments into the drainage systems. Uncontrolled soil erosion can have adverse effects on any local water bodies.

5.3.7 Solid waste generation

Quantities of solid wastes will be generated as a result of excavations in the existing unused land as well as during the actual construction of the parking lot. Such solid waste materials can be injurious to the environment through blockage of drainage systems, choking of water bodies and negative impacts on human and animal health. This may be accentuated by the fact that some of the waste materials contain hazardous substances such as paints, cement, adhesives and bitumen, while some of the waste materials including plastic containers are not biodegradable and can have long-term and cumulative effects on the environment.

5.3.8 Energy consumption

The parking lot project will consume fossil fuels (mainly diesel) to run transport vehicles and construction machinery. Fossil energy is non-renewable and its excessive use may have serious environmental implications on its availability, price and sustainability.

The project may also use electricity supplied by Kenya Power & Lighting Company (KPLC) Ltd. Electricity in Kenya is generated mainly through natural resources, namely, water and geothermal resources. In this regard, there will be need to use electricity sparingly since high consumption of electricity negatively impacts on these natural resources and their sustainability.

5.3.9 Water use

The construction activities will require large quantities of water mainly for concrete mixing, dust suppression and sanitary and washing purposes. Excessive water use may negatively impact on the water source and its sustainability. The water for use in Kitengela area used to be supplied by the Export Processing Zone Authority but this service is now being transferred to Olkejuado Water and Sewerage Company (OWSC) under the supervision of Tanathi Water Services Board (TAWSB).
5.3.10 Increased Traffic
The construction phase will be characterized by increased traffic that may cause traffic jams and inconvenience to transporters and commuters.

5.3.11 Oil Spills
The construction phase could be characterized by oil spills especially if the construction vehicles are not well maintained that they spill oils onto the soil or environment whilst operating or even when stationary. Poor handling of oils in containers could result in spills onto the soil or environment. Additionally, if the contractor has a garage or oil pit for oil change of construction vehicles or equipment, there could be poor management of waste oil or waste oil containers and oil-soaked rags or cartons that would pollute the environment or soils. Such spilt oil can soak and seep into the subterranean environment polluting it as well as any near-by water sources like streams or rivers.

5.4 Negative Social Impacts

5.4.1 HIV-AIDS Infections
There is risk of infections to workers and other persons to sexually transmitted diseases and HIV-AIDS during project implementation following increased incomes of workers as well as some of the contractor workers being away from their homes.

5.4.2 Labour Influx
The construction works may result in workers moving in to the area seeking employment in the construction.

5.4.3 Gender Mainstreaming
Construction works may favour one gender over the other especially when allocating tasks to different gender.

5.4.4 Community Health and Safety
The construction works may adversely affect the surrounding community especially if they can access the active site.

5.4.5 Children at Site
Some contractors use children at site as they are cheaper and easy to manipulate and exploit economically or engage in activities that may harm their social, economic and physical well-being. Sometimes, children are able to access the site uncontrolled or unrestricted.

5.4.6 Complaints and grievances from surrounding community
There is likelihood that the surrounding community – boda boda operators and commercial businesses - may express some complaints regarding one matter or another for the construction of the parking lot.

5.5 Positive impacts of construction activities

5.5.1 Creation of temporary employment opportunities
Several employment opportunities will be created for construction workers during the construction phase of the project. This will be a significant impact since unemployment is currently quite high in Kitengela and the surrounding areas.
5.5.2 Provision of market for supply of construction materials
The project will require supply of large quantities of construction materials most of which will be sourced locally in Kajiado County and the surrounding areas. This provides ready market for construction material suppliers such as quarrying companies, hardware shops and individuals with such materials.

5.5.3 Increased business opportunities
The large number of project staff required will provide ready market for various goods and services, leading to several business opportunities for small-scale traders such as food vendors around the construction site.

5.6 Negative environmental impacts of operational activities

5.6.1 Increased storm water flow
The pavements will lead to increased volume and velocity of storm water or run-off flowing across the area covered by the roads. This will lead to increased amounts of storm water entering the drainage systems, resulting in overflow and damage to such systems in addition to increased erosion or water logging in the neighboring areas if not adequately mitigated.

5.6.2 Oil Spills
The operations phase could be characterized by oil spills especially if the parking lots are uncontrollably used as garages or for storing unmaintained, un-serviced or broken down vehicles. Poor handling of oils in containers in this case could result in spills onto the ground or environment. Additionally, if the vehicle owners decide to go for oil change in the parking lot, there could be poor management of waste oil or waste oil containers and oil-soaked rags or cartons that would pollute the environment or soils. Such spilt oil can soak and seep into the subterranean environment polluting it as well as any near-by water sources like streams or rivers.

5.6.3 Exhaust emissions
Idling of vehicles in the parking lot would result in generation of exhaust emissions to the environment of the parking lot. This will contribute to increases in emissions of SO₂, CO₂, NO₂ and fine particulates in the environment of the parking lots.

5.6.4 Solid wastes generation
Quantities of solid wastes will be generated from motorists using the parking lots. Such solid waste materials can be injurious to the environment through blockage of drainage systems, choking of water bodies and negative impacts on human and animal health.

5.7 Positive impacts of operational activities

5.7.1 Revenue to national and local governments
Through payment of relevant taxes, rates and fees to the government and the local authority, the roads project will contribute towards the national and local revenue earnings from those using the improved facilities.

5.7.2 Other positive impacts
Other positive impacts include reduction of dust emissions in the use of a modern parking facility as well as decongesting Kitengela Township.

5.8 Negative social impacts of operational activities

5.8.1 HIV-AIDs
There is risk of infections to parking users and workers to sexually transmitted diseases and HIV-AIDS during project operations following increased incomes of workers as well as increased use of the parking facilities.

5.9 Positive social impacts of operational activities
The operational activities after this project is commissioned will have several positive long-term social impacts that include the following;
- Convenience of affordable and organized parking for motorists
- Improved drainage will reduce the flood damage and improve accessibility to commercial businesses in the area
- Long term spurring of physical development in the area leading to increased jobs for Kitengela Town residents
- Cleaner and orderly environment with improved safety and security
- Reduction of dust since the ground of the parking lot will be paved.

5.9 Negative environmental impacts of decommissioning activities

5.9.1 Solid waste
In the unlikely demolition of the parking lot and related infrastructure, large quantities of solid waste will result. The waste will contain the materials used in construction including concrete, metal, kerbs, bitumen, stones and ballast. Although demolition waste is generally considered as less harmful to the environment since they are composed of inert materials, there is growing evidence that large quantities of such waste may lead to release of certain hazardous chemicals into the environment. In addition, even the generally non-toxic chemicals such as chloride, sodium, sulphate and ammonia, which may be released as a result of leaching of demolition waste, are known to lead to pollution of groundwater.

5.9.2 Dust
Dust will be generated during demolition works. This will affect demolition staff as well as the neighboring residents.

5.9.3 Noise and vibration
The demolition works will lead to significant deterioration of the acoustic environment within the project site and the surrounding areas.

5.10 Positive environmental impacts of decommissioning activities
5.10.1 Rehabilitation
Upon decommissioning the project, rehabilitation of the project site will be carried out to restore the site to its original status. This will include replacement of topsoil that will lead to improved visual quality of the area.

5.10.2 Employment Opportunities
Several employment opportunities will be created for demolition staff.
CHAPTER SIX

ANALYSIS OF PROJECT ALTERNATIVES

This section analyses the project alternatives in terms of site, technology scale and waste management options.

6.1 Relocation Option
Relocation option to a different site is not an option available for the project implementation as this project is to improve parking in Kitengela to assist in providing orderly and secure parking.

6.2 Zero or No Project Alternative
The No Project option in respect to the proposed project implies that the status quo is maintained. This option is the most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. This option will however, involve several losses both to Kajiado County and the community as a whole. The road to Athi River Prison will continue being congested and disorderly. The No Project Option is the least preferred from the socio-economic and partly environmental perspective due to the following factors:
- The economic status of the Kenyans and the local people would remain unchanged.
- The parking lot would remain unconstructed and unutilized.
- No employment opportunities will be created for construction workers
- Increased urban poverty and crime in Kenya.
- Discouragement for investors and loaners
- Development of infrastructural facilities will not be undertaken.

From the analysis above, it becomes apparent that the No Project alternative is no alternative to the local people, Kenyans, and the Government of Kenya.

6.3 Analysis of Alternative Construction Materials and Technology
The proposed project will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy and water will be given first priority without compromising on cost or availability factors. The parking lot will be made using locally sourced stones, cement, sand (washed and clean) and other materials that meet the Kenya Bureau of Standards requirements.

The alternative technologies available include the conventional concrete, prefabricated concrete panels, or even temporary structures. These may not be desirable from a cost and durability perspective. The technology to be adopted will be the most economical and one sensitive to the environment.

6.4 Solid waste management alternatives
Solid wastes will be generated from the proposed project. An integrated solid waste management system is recommendable. First, the proponent will give priority to reduction at source of the
materials. This option will demand a solid waste management awareness program in the management and the staff. Recycling and reuse options of the waste will be the second alternative in priority. This will call for a source separation program to be put in place. The third priority in the hierarchy of options is combustion of the waste that is not recyclable. Finally, the proponent will need to establish agreement with the Kajiado County to ensure regular waste removal and disposal in an environmentally-friendly manner. In this regard, a NEMA registered solid waste handler would have to be engaged. This is the most practical and feasible option for solid waste management considering the delineated options.
CHAPTER SEVEN

IMPACTS MITIGATION AND MONITORING

7.1 Introduction
This chapter highlights the necessary mitigation measures that will be adopted to prevent or minimize significant negative environmental, health and safety impacts associated with the project during its construction, operation and decommissioning phases as identified earlier. Allocation of responsibilities, time frame and estimated costs for implementation of these measures are presented in the Environmental and Social Management and Monitoring Plan (ESMMP).

7.2 Sensitive Receptors
There should be constant dust management at the site through sprinkling of water to protect the commercial businesses from dust emissions. To reduce vehicle exhaust emissions to the businesses, there should be no idling of vehicles or running their engines unnecessarily. This should also be applied for no or reduced noise and vibrations during construction works. The construction area also needs to be barricaded with warning signs and passers-by kept off the site. As much as possible, the contractor needs to maximize work during hours when there are fewer persons near the site to attain more works progress.

7.3 Mitigation of construction phase impacts
7.3.1 Efficient sourcing and use of raw materials
The contractor will source construction materials such as sand, ballast and hard core from registered quarry and sand mining firms, whose establishments have undergone satisfactory environmental impact assessment/audit and received NEMA approval. Since such firms are expected to apply acceptable environmental performance standards, the negative impacts of their activities at the extraction sites are considerably well mitigated.
To reduce the negative impacts on availability and sustainability of the materials, the contractor will only order for what will be required through accurate budgeting and estimation of actual construction requirements. This will ensure that materials are not extracted or purchased in excessive quantities.
Moreover, the proponent will ensure that wastage, damage or loss (through run-off, wind, etc) of materials at the construction site is kept minimal, as these would lead to additional demand for and extraction or purchase materials.
In addition to the above measures, the contractor shall consider reuse of construction materials and use of recycled materials. This will lead to reduction in the amount of raw materials extracted from natural resources as well as reducing impacts at the extraction sites.
7.3.2 Reduction of dust generation and emission
Dust emission during construction will be minimized through strict enforcement of on-site speed controls as well as limiting unnecessary traffic within the project site. Traffic routes on site have to be sprinkled with water regularly to reduce amount of dust generated by the construction trucks. In addition, workers are to wear suitable respirators to protect them against dust.
7.3.3 Minimization of exhaust emissions
This will be achieved through proper planning of transportation of materials to ensure that vehicle fills are increased in order to reduce the number of trips done or the number of vehicles on the road. In addition truck drivers will be sensitized to avoid unnecessary racing of vehicle engines at loading/offloading areas, and to switch off vehicle engines at these points. Vehicles should be maintained to manufacturers’ specifications.

7.3.4 Minimization of noise and vibration
Noise and vibration will be minimized in the project site and surrounding areas with strict adherence to designated working hours; and through sensitization of construction truck drivers to switch off vehicle engines while offloading materials. In addition, they will be instructed to avoid running of vehicle engines or hooting especially when passing through sensitive areas such as residential areas and schools. In addition, construction machinery shall be kept in good condition to reduce noise generation and maintained in accordance with manufacturers’ specifications. It is recommended that all generators and heavy duty equipment be insulated or placed in enclosures to minimize ambient noise levels. They should also be located in areas of the site where they cause minimum nuisance.

7.3.5 Reduction of risks of accidents and injuries to workers
The contractor will have to be committed to adherence to the occupational health and safety rules and regulations stipulated in Occupational Health and Safety Act, OSHA and its subsidiary legislations. In this regard, the contractor is committed to provision of appropriate personal protective equipment, as well as ensuring a safe and healthy environment for construction workers as outlined in the ESMMP. This will also include use of an emergency response and disaster management plan as well as training some workers on first aid and fire safety. Warning signs and barricading will also need to be applied to manage the hazards for no accidents or incidents.

7.3.6 Minimization of run-off and soil erosion
The contractor will put in place measures aimed at minimizing soil erosion and associated sediment release from the project site during construction. These measures will include silt traps, barriers, vegetation planting, terracing and leveling the project site to reduce run-off velocity and increase infiltration of rainwater into the soil. In addition, construction vehicles will be restricted to designated areas to avoid soil compaction within the project site, while any compacted areas will be ripped to reduce run-off.

7.3.7 Minimization of construction wastes
It is recommended that demolition and construction waste is properly collected, stored, recycled or reused to ensure that materials that would otherwise be disposed off as waste are diverted for productive uses. In this regard, the proponent is committed to ensuring that construction materials left over at the end of construction will be used in other projects rather than being disposed off. The proponent shall put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal.

Additional recommendations for minimization of solid waste during construction of the project include:-
• Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time.
• Provision of facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to weather elements
• Purchase of perishable construction materials such as paints incrementally to ensure reduced spoilage of unused materials
• Use of building materials that have minimal packaging to avoid the generation of excessive packaging waste
• Use of construction materials containing recycled content when possible and in accordance with accepted standards
• Disposal of unneeded wastes should be undertaken by licensed wastes handlers.

7.3.8 Reduction of energy consumption
The proponent shall ensure responsible electricity use at the construction site through sensitization of staff to conserve electricity by switching off electrical equipment or appliances when they are not being used.
In addition, proper planning of transportation of materials will ensure that fossil fuels (diesel and petrol) are not consumed in excessive amounts. Complementary to these measures, the proponent shall monitor energy use during construction and set targets for reduction of energy use.

7.3.9 Minimization of water use
The contractor shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid irresponsible water usage.

7.3.10 Traffic Management
Traffic flagmen and use of warning signs and bumps where necessary should be applied to manage and control traffic employed in the construction works.

7.3.11 Oil Spills Management
The Contractor must use well maintained vehicles and equipment for no oil spills. If found necessary to have an oil change pit in the site office area, this needs to be constructed such that it is paved for no oil spills into the ground and with an oil interceptor so that oil does not spill and percolate to the ground to pollute it. All waste oil removed from vehicles needs to be disposed off by NEMA registered oil handlers. Oil soaked materials like rags and cartons have to be disposed off by this handler. Under no circumstances should oil be spilt to pollute the soil or nearby streams or rivers or any water sources. The proponent also needs to be involved in the construction of this oil pit and approve it before it is operationalized.

7.4 Mitigation of Social Impacts
7.4.1 HIV-AIDS Management
It is recommended that there is sensitization and awareness creation to safeguard workers and other persons against infections from sexually transmitted diseases including HIV-AIDS.

7.4.2 Labour Influx
As much as possible, the contractor should draw casual and semi-skilled or unskilled workers from the local community to minimize conflicts with the surrounding community.
7.4.3 Gender Mainstreaming
It is important that both men and women are considered for the works. A situation whereby there is preponderance of men even for tasks that women can do is a negative impact on gender. All need to have equitable opportunities.

7.4.4 Community Health and Safety
It is important that during the construction phase, the project considers the health and safety of the surrounding community including proper barricading or fencing of site, management and control of construction vehicles – low speed limits, flagmen assigned to control traffic and designation of routes for bringing materials to and from site - use of warning signs and optimizing on number of vehicles trips through better material inventory management. There should be a safety officer on site to ensure elimination or reduction of accidents to workers and surrounding community.

7.4.5 Child Protection
It is important that during the construction phase, no under-age children are employed as workers and neither should they be allowed to be in the active site especially during construction works.

7.4.6 Grievance Redress Mechanisms
Grievance redress mechanisms will be employed for this project to handle and manage any complaints or grievances received from concerned persons. The mechanism for this that will be applied is part of this report. It is expected that a standard form is applied to receive complaints / grievances and a grievance log is kept on site by the Resident Engineer.

7.5 Mitigation of operation phase environmental impacts
7.5.1 Management of storm-water runoff
The contractor will ensure that proper drainage is provided and regularly maintained for storm-water run-off management. The maintenance and repairs fall under the jurisdiction of the county government.

7.5.2 Oil Spills Management
The County Government of Kajiado must ensure that the parking lot is not used to park un-serviced, broken down or unmaintained vehicles and neither should the lots be used as garages. The use of the parking lot at operations must be controlled by the county government.

7.5.3 Exhaust Emissions Management
The County Government of Kajiado must ensure that the parking lot is used responsibly with no unnecessary idling of vehicles once parked. The county government has the sole rights on the usage of the parking lot and is at their discretion to ensure no vehicles that pollute the environment through unnecessary emissions use the parking.

7.5.4 Solid Wastes Management
The county government of Kajiado will be responsible for managing the solid wastes generated from the parking lot by providing waste receptors and engaging a licensed wastes handler to empty and dispose off in an environmentally friendly manner.

7.6 Mitigation of operation phase social impacts
7.6.1 HIV-AIDS Management
The county government of Kajiado and the national government shall continue to sensitize and create awareness on HIV-AIDS and provide the necessary protection devices even for staff who will be engaged at the parking lot during operations.

7.7 Mitigation of decommissioning phase impacts
7.7.1 Efficient solid waste management
Solid wastes resulting from demolition or dismantling works will be managed as described above.

7.7.2 Reduction of dust concentration
High levels of dust concentration resulting from demolition or dismantling works will be minimized as described earlier.

7.7.3 Minimization of noise and vibration
Significant impacts on the acoustic environment will be mitigated as described.
CHAPTER EIGHT

ENVIRONMENTAL & SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

8.1 Significance of an ESMMP
An Environmental and Social Management and Monitoring Plan (ESMMP) for developing projects is used to provide a logical framework within which identified negative environmental impacts can be avoided, mitigated and monitored. In addition, the ESMMP assigns responsibilities of actions to various actors and provides a timeframe within which mitigation measures and monitoring can be done. The ESMMP is a vital output of an Environmental and Social Impact Assessment as it provides a checklist for project monitoring and evaluation. The ESMMP outlined below will address the identified potential negative impacts and mitigation measures of the parking lot project based on the chapters on environmental and social impacts and mitigation measures of the negative impacts.

8.1.1 Pre-Construction & Construction Phases ESMMP
The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts associated with the construction phase of the project are shown in the ESMMP table that is a part of this report.

8.2 Duties of the Proponent
It will be the duty of the proponent to ensure that all legal requirements as pertaining to the development are met as specified by the law, including World Bank Safeguards and specifically OP4.01 (Environmental Assessment).
- The proponent shall hand over the site to the Contractor for implementation of the project
- The proponent will fund the project
- The proponent will acquire the NEMA license
- The proponent will supervise the project and will also ensure its satisfactory implementation
- The proponent shall ensure that there is a functional stakeholder engagement plan and grievance redress mechanism
- The proponent shall define the area of the site, which will be occupied by the contractor for construction purposes

8.3 Duties of the Contractor
- Prepare and maintain an approved time and progress work-chart, showing clearly the period allowed for each section of the work.
- The contractor is to comply with all regulations and by-laws of the local authority including serving of notices and paying of the fees.
- During the night, public holidays and any other time when no work is being carried out on-site, the contractor shall accommodate only security personnel and never should a labor camp be allowed onsite.
• The contractor shall make good at his own expense any damage he may cause to the public and private roads, drainages and pavements in the course of carrying out the parking lot work.

• The contractor shall provide at his own risk, and cost all water required for use in connection with the works including the work of subcontractors, and shall provide temporary storage tanks, if required.

• The contractor shall make his own arrangements for sanitary conveniences for his workmen. Any arrangements so made shall be in conformity with the public health requirements for such facilities and the contractor shall be solely liable for any infringement of the requirements.

• The contractor shall be responsible for all the actions of any subcontractors in the first instance.

• The contractor shall take all possible precautions to prevent nuisance, inconvenience or injury to the neighboring properties and to the public generally, and shall use proper precaution to ensure the safety of wheeled traffic and pedestrian.

• All work operations which may generate noise, dust, vibrations, or any other discomfort to the workers and/or guests of the client and the neighbors must be undertaken with care, with all necessary safety precautions taken.

• The contractor shall take all effort to muffle the noises from his tools, equipment and workmen to not more than 80dBA. This should also comply with the requirements of the WBG EHS Guidelines, whichever is the more stringent.

• The contractor shall upon completion of working, remove and clear away all plant, rubbish and unused materials and shall leave the whole site in a clean and tidy state to the satisfaction of the proponent. He shall also remove from the site all rubbish and dirt as it is produced to maintain the tidiness of the premises and its immediate environs.

• The standard of workmanship shall not be inferior to the Kenya Bureau of Standards and/or current British codes of practice where existing. No materials for use in the permanent incorporation into the works shall be used for any temporary works or purpose other than that for which it is provided. Similarly, no material for temporary support may be used for permanent incorporation into the works.

• The contractor shall maintain good working relationship with the community and implement the stakeholder engagement plan and the grievance redress mechanism.

• The Contractor shall provide and engage a Safety Officer on site to manage occupational health and safety matters.

• The contractor shall also submit and commit to comply with an Environmental and Social Health and Safety (ESHS) Plan and a Code of Conduct regarding Contractor Environmental and Social Management Plan, CESMP.

This section will be reviewed carefully against the contract documentation to ensure it is included in the contract documentation. As well, the contractor has to submit and have approved by the proponent the ESHS and the Code of Conduct.
<table>
<thead>
<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party – NaMSIP*</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Efficient sourcing and use of raw materials</td>
<td>▪ Maximize sourcing of construction materials from suppliers who use environmentally friendly processes in their operations. Only suppliers that have the relevant permits and consents etc in place shall be used as sources of material for the project, also as required by the National Construction Authority, NCA.</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
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<tr>
<td></td>
<td>▪ Ensure accurate budgeting and estimation of actual construction material requirements to ensure that the least amount of material necessary is ordered</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that damage or loss of materials at the construction site are kept minimal through proper storage</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party – NaMSIP*</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
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<td></td>
<td>▪ Through accurate estimation of the sizes and quantities of materials required, order materials in the sizes and quantities they will be needed, rather than cutting them to size, or having large quantities of residual materials.</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td>2) Reduction</td>
<td>▪ Sprinkle water on access routes as necessary to reduce dust generation by construction vehicles</td>
<td>Contractor</td>
<td>Monitoring Indicators (Based on IFC, WB, EU and WHO Standards)</td>
<td>60,000/month</td>
</tr>
<tr>
<td>of dust</td>
<td>▪ Sprinkle water at the construction site to prevent dust and also protect the adjacent businesses from dust</td>
<td></td>
<td>SO₂ – 20 ug/m³</td>
<td></td>
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<tr>
<td>generation</td>
<td>▪ Sensitize truck drivers to avoid unnecessary racing of vehicle engines at loading/offloading points and parking areas. Switch off or keep vehicle engines at these points</td>
<td>Contractor</td>
<td>PM₁₀ – 50 ug/m³</td>
<td></td>
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<tr>
<td>and emissions</td>
<td>▪ Provide workers with suitable respirators for those exposed to dust</td>
<td>Contractor</td>
<td>NO₂ – 200 ug/m³</td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td><strong>N</strong></td>
<td>40,000</td>
</tr>
</tbody>
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### Objective/Plan

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<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party – NaMSIP*</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
</table>
| 3) Minimization of exhaust emissions      | ▪ Ensure proper planning of transportation of materials to ensure that vehicle fills are increased in order to reduce the number of trips done per vehicle or the number of vehicles on the road  
   ▪ Sensitize construction vehicle drivers and machinery operators to switch off engines of vehicles or machinery not being used. This will protect the adjacent businesses | Contractor                        | Throughout construction period  
   Monitoring Indicators (Based on IFC, WB, EU and WHO Standards)  
   - SO$_2$ – 20 ug/m$^3$  
   - PM$_{10}$ – 50 ug/m$^3$  
   - NO$_2$ – 200 ug/m$^3$ | -                                                                                          |
| 4) Minimization of noise and vibration    | ▪ Sensitize construction drivers to avoid gunning of vehicle engines or hooting especially when passing through sensitive areas such as residential areas and schools and on site to protect the adjacent businesses  
   ▪ Ensure that construction machinery are kept in good condition to reduce noise generation and serviced in accordance with manufacturers requirements | Contractor                        | Throughout construction period. Maximum permissible noise levels for construction sites  
   - Legal Notice No. 61 – EMCA Noise Control Regulations  
   - Day – 75 dB (A)  
   - Night – 60 dB(A) – No working at night.  
   Monitor for 80 dB(A) continuous for 8 hrs or one-off at 140 dB(A) for provision of ear protection. | -                                                                                          |
### Objective/Plan | Recommended Mitigation Measures | Responsible Party – NaMSIP* | Monitoring Mechanism | Approximate Cost (Kshs)
---|---|---|---|---
| | Ensure that all generators and heavy duty equipment are insulated or placed in enclosures to minimize ambient noise levels and located in areas that cause minimum nuisance. | Contractor | Vibration levels do not exceed 0.5 centimeters per second beyond any source property boundary or 30 metres from any moving source. | -
| | Provide workers in high noise areas with suitable earmuffs | Contractor |  | 60,000

5) **Reduction of risks of accidents and injuries to workers**

| | Ensure that provisions for reporting incidents, accidents and dangerous occurrences during construction using prescribed forms obtainable from the local Occupational Health and Safety Office (OHSO) are in place. | Contractor | Continuous Monitor for Zero Fatalities and Zero Accidents/Incidents | -
| | Ensure that the premises are insured as per statutory requirements (third party and workman’s compensation) | Proponent | Annually | -
| | Develop, document and display prominently an appropriate SHE policy for construction works | Contractor | One-off | -
<table>
<thead>
<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party – NaMSIP*</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ Provisions must be put in place for the formation of a Health and Safety Committee, in which the employer and the workers are represented</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Provide suitable PPE (gloves, hard hats, overalls and safety shoes) to manage workplace hazards</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>200,000</td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that equipment and work tasks are adapted to fit workers and their ability including protection against mental strain</td>
<td>Contractor</td>
<td>Continuous</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ All machines and other moving parts of equipment must be enclosed or guarded to protect all workers from injury</td>
<td>Contractor</td>
<td>One-off</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Arrangements must be in place to train and supervise inexperienced workers regarding construction machinery use and other procedures/operations</td>
<td>Contractor</td>
<td>Continuous</td>
<td>5,000 per training</td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party – NaMSIP*</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
</tr>
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<td>--------------------------------------------------------------------------------------------------</td>
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<td>------------------------</td>
</tr>
<tr>
<td></td>
<td>§ Equipment such as fire extinguishers must be examined by a government authorized person. The equipment may only be used if a certificate of examination has been issued</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>§ Reports of such examinations must be presented in prescribed forms, signed by the examiner and attached to the general register</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>§ Ensure that materials (cement bags, aggregates, bitumen drums) are stored or stacked in such manner as to ensure their stability and prevent any fall or collapse</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>§ Conduct sensitization campaign for the public on risks related to construction sites.</td>
<td>Contractor</td>
<td>Twice (before construction begins) and a repeated after 1 month.</td>
<td>-</td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party – NaMSIP*</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------</td>
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<td>------------------------</td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that machinery, equipment, personal protective equipment, appliances and hand tools used in construction do comply with the prescribed safety and health standards and be appropriately installed, maintained and safeguarded</td>
<td>Contractor</td>
<td>One-off</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Design suitable documented emergency preparedness and evacuation procedures to be used during any emergency. Such procedures must be tested at regular intervals</td>
<td>Contractor</td>
<td>Every 3 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that adequate provisions are in place to immediately stop any operations where there is an imminent and serious danger to health and safety and to evacuate workers</td>
<td>Contractor</td>
<td>One-off</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that the most current emergency telephone numbers posters are prominently and strategically displayed within the construction site</td>
<td>Contractor</td>
<td>One-off</td>
<td></td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party – NaMSIP*</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
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<td>----------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
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<td>------------------------</td>
</tr>
<tr>
<td>§ Provide measures to deal with emergencies and accidents including adequate first aid arrangements</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>§ Sensitize the public on potential emergency situations</td>
<td>Contractor</td>
<td>Twice (before construction begins) and a repeated after 1 month.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>§ Provision must be made for persons to be trained in first aid, with a certificate issued by a recognized body.</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>§ Fire-fighting equipment such as fire extinguishers should be provided at strategic locations such as stores and construction areas.</td>
<td>Contractor</td>
<td>One-off</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>§ Regular inspection and servicing of the equipment must be undertaken by a reputable service provider and records of such inspections maintained</td>
<td>Contractor</td>
<td>Every 3 months</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>§ Signs such as “NO SMOKING” must be prominently displayed within the premises, especially in parts where inflammable materials are stored</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party – NaMSIP*</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td>--------------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td>▪ Enough space must be provided within the premises to allow for adequate natural ventilation through circulation of fresh air</td>
<td>Contractor</td>
<td>One-off</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Well stocked first aid box which is easily available and accessible should be provided within the premises</td>
<td>Contractor</td>
<td>One-off</td>
<td></td>
</tr>
</tbody>
</table>

6) **Minimization of soil run off and soil erosion**

<p>|                | ▪ Apply soil erosion control measures such as leveling of the project site to reduce run-off velocity and increase infiltration of storm water into the soil, e.g. silt traps, barriers, tree planting. | Contractor                 | Throughout construction period            |                         |
|                | ▪ Ensure that construction vehicles are restricted to existing graded roads to avoid soil compaction within the project site. | Contractor                 | Throughout construction period            |                         |
|                | ▪ Ensure that any compacted areas are ripped to reduce run-off. | Contractor                 | 6 months                                  |                         |</p>
<table>
<thead>
<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party – NaMSIP*</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
</table>
| 7) Minimization of construction wastes | ▪ Ensure that construction materials left over at the end of construction will be used in other projects rather than being disposed of.  
▪ Ensure that damaged or wasted construction materials will be recovered for refurbishing and use in other projects  
▪ Utilize opportunities for donating recyclable/reusable or residual materials to local community groups, institutions and individual local residents or home owners.  
▪ Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time | Contractor  
Contractor  
Contractor  
Contractor | One-off  
One-off  
One-off  
Throughout construction period | -  
-  
-  
-- |
### Recommended Mitigation Measures

<table>
<thead>
<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party – NaMSIP*</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>§ Provide facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements</td>
<td>Contractor</td>
<td>One-off</td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td>§ Purchase of perishable construction materials such as paints should be done incrementally to ensure reduced spoilage of unused materials</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>§ Use construction materials that have minimal or no packaging to avoid the generation of excessive packaging waste</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>§ Reuse packaging materials such as cartons, cement bags, empty metal and plastic containers to reduce waste at the site</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>§ Dispose waste more responsibly by dumping at designated dumping sites or engaging the use of a registered waste disposal company or Nairobi City County</td>
<td>Contractor &amp; Kajiado County Government</td>
<td>Throughout construction period</td>
<td>10,000/month</td>
<td></td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party – NaMSIP*</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
</tr>
<tr>
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<td>------------------------</td>
</tr>
<tr>
<td>8) Reduction of energy consumption</td>
<td>▪ Ensure planning of transportation of materials to ensure that fossil fuels (diesel, petrol) are not consumed in excessive amounts&lt;br&gt;▪ Monitor energy use during construction and set targets for reduction of energy use.</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td>9) Minimization of water use</td>
<td>▪ Promote recycling and reuse of water as much as possible.&lt;br&gt;▪ Organize collection of rainwater on site&lt;br&gt;▪ Sensitize workers on proper water use</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td>10) Traffic management</td>
<td>▪ Employ traffic flagmen to direct traffic&lt;br&gt;▪ Use of warning signs&lt;br&gt;▪ Erect bumps where necessary</td>
<td>Contractor</td>
<td>Continuous</td>
<td>200,000</td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party – NaMSIP*</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
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</tr>
</tbody>
</table>
| 11) Oil Spills Management | § Use of well maintained construction vehicles and equipment  
§ Proper design of an oil change pit if required with oil interceptor  
§ Handling of waste oil and oil-soaked materials by NEMA registered handlers | Contractor | Throughout construction phase  
Zero Spills | 350,000 |
| 12) HIV-AIDS Management | § Awareness creation and sensitization to workers and other persons engaged in the project to reduce or eliminate chances of infections of HIV-AIDS and other sexually transmitted diseases  
§ Provide on a regular basis condoms to workers on site | Contractor | Throughout construction period  
Number of infected persons | 800,000 |
<p>| 13) Labour influx | § Engage local community to provide casual, semi-skilled and unskilled workers | Contractor | Continuous | - |
| 14) Gender mainstreaming | § Engage both men and women in the works without discrimination | Contractor | Continuous | - |</p>
<table>
<thead>
<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party – NaMSIP*</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15) Community Health and Safety</td>
<td>• Barricade / fence construction site</td>
<td>Contractor</td>
<td>Number of complaints/accidents/incidents</td>
<td>100,000</td>
</tr>
<tr>
<td></td>
<td>• Use of warning signs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sensitize public on hazards of the works</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Enforce vehicle low speed limits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use flagmen to control traffic and construction vehicles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Optimize on number of trips to reduce accidents and better materials inventory management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Designate routes with minimum community persons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Optimize work to gain maximum output during non-busy days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16) Child protection</td>
<td>• No under-age children are to be employed on site</td>
<td>Contractor</td>
<td>Continuous</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Children including from near-by businesses are strictly not allowed on the site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party – NaMSIP*</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
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</tr>
<tr>
<td>17) Grievance redress mechanisms</td>
<td>• Grievance redress mechanisms will be employed for this project to handle and manage any complaints or grievances received from concerned persons</td>
<td>Grievance Chairman / Committee (Steward by Resident Engineer)</td>
<td>Continuous</td>
<td>100,000</td>
</tr>
</tbody>
</table>

**TOTAL ESMMP BUDGET**

<table>
<thead>
<tr>
<th>Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,825,000</td>
</tr>
</tbody>
</table>

*NaMSIP* - The key responsibilities regarding compliance to the above ESMMP mainly rests on the Contractor. However, it is important that the project proponent (NaMSIP) ensures adequate monitoring and evaluation of the project for no non-conformances to safeguards through NaMSIP’s Safeguards Team, Resident Engineer and Assistant Resident Engineer.

The key responsibilities regarding compliance to the above ESMMP rest on the Contractor. However, it is important that the project proponent ensures adequate monitoring and evaluation for the Contractor for no non-conformances.

### 8.1.1 Operational Phase ESMMP

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts associated with the operational phase the project are outlined below.
Table 4: ESMMP for the Operational Phase of the Project

<table>
<thead>
<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party</th>
<th>Monitoring Mechanism</th>
<th>Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Storm Water Run-off Management</td>
<td>▪ Provide proper storm water drainage from the paved roads.</td>
<td>Contractor</td>
<td>One-off</td>
<td>Part of project costs</td>
</tr>
<tr>
<td></td>
<td>▪ Provide regular inspection and maintenance of the drains.</td>
<td>Kajiado County</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>2) Health and Safety Risks.</td>
<td>▪ Implement all necessary measures to ensure health and safety of workers and the general public during operation of the project as stipulated in OSHA 2007</td>
<td>Kajiado County</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>3) Solid waste management</td>
<td>▪ Implement measures to ensure adequate solid waste management in the parking lot including putting wastes receptacles and disposal</td>
<td>Kajiado County</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>4) HIV-AIDS Management</td>
<td>▪ Awareness creation and sensitization to workers and other persons post-project to reduce or eliminate chances of infections of HIV-AIDS and other sexually transmitted diseases</td>
<td>Kajiado County</td>
<td>Continuous</td>
<td>-</td>
</tr>
</tbody>
</table>

8.1.2 Decommissioning Phase

In addition to the mitigation measures provided above, it is necessary to outline some basic mitigation measures that will be required to be undertaken once all operational activities of the project have ceased. The necessary objectives, mitigation measures, allocation of responsibilities, time frames and costs pertaining to prevention, minimization and monitoring of all potential impacts associated with the decommissioning and closure phase of the project are outlined in below.
Table 5: ESMMP for the Decommissioning Phase

<table>
<thead>
<tr>
<th>Environmental Impact</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party</th>
<th>Time Frame</th>
<th>Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sold Waste Generation.</td>
<td>• All removed materials that will not be used for other purposes must be removed and recycled/reused as far as possible</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>• Where recycling/reuse of the removed materials and other demolition waste is not possible, the materials should be taken to a licensed waste disposal site or dumpsite or arrangements made with Kajiado County</td>
<td>Contractor</td>
<td>One-off</td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td>• Donate reusable demolition waste to charitable organizations, individuals and institutions</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>• Trees should be planted at suitable locations so as to interrupt slight lines (screen planting), between the adjacent commercial premises area and the development.</td>
<td>Contractor</td>
<td>Once-off</td>
<td>-</td>
</tr>
</tbody>
</table>
CHAPTER NINE

AUXILIARY INFORMATION

9.1 Budget
The summary of the certified Bills of Quantities that form the cost of the project is as attached in the Annexes. The total project cost is **Kshs. 59,616,576/00**.

9.2 Monitoring Guidelines
Continuous observations and assessment is essential so that if unforeseen safety dangers are noticed, alternatives must be sought. Risk assessment of accidents, and other adverse impacts should not be ignored in the construction plan. Waste management in the construction should be strictly followed. Mitigation measures of storm water management are essential. Safety standards should constantly be maintained, with indicators like condition of equipment, contractor compliance with the set regulations, and tracking of accidents and grievances on-site logged regularly.

9.3 Reporting
Constant reporting by the site resident engineer to the contractor and proponent is necessary to ensure the project is executed as per the designs, plans and drawings. The safety officer should always remain on site to report any safety concerns for urgent mitigation. The officer should also at all times enforce safety requirements as per the relevant legislation and as per this report. The contractor must consult the proponent to maintain a clear understanding of all the aspects of the project. Kajiado County Government should be involved where necessary in early stages of the project to increase acceptance and ensure necessary partnership is in place (e.g. waste removal requirements).

Monthly progress reports (MPR) done during the implementation phase must have a detailed annexure on ESMP. Alternatively, detailed stand-alone reports need to accompany the MPR showing the status of compliance to the ESMP and Code of Conduct.
CHAPTER TEN

CONCLUSION AND RECOMMENDATION

During the preparation of this report for the development of the proposed parking lot in Kitengela Township, it was observed and established that most of the negative environmental and social impacts on the environment can be mitigated and have potentially short term low significant effects. The positive impacts are highly rated and will benefit all stakeholders and Kitengela residents at large. The project proponents have proposed to adhere to prudent implementation of the environmental and social management and monitoring plan. The contractor is committed to obtaining all necessary permits and licenses from the relevant authorities and have qualified and adequate personnel to do the project as proposed. The proponent has proposed adequate safety and health mitigation measures as part of the relevant statutory requirements.

It is the duty of NEMA to consider licensing the project subject to annual environmental audits once it has been commissioned. This will be in compliance with the Environmental Management and Coordination Act, EMCA of 2015 and the Environmental Impact Assessment and Audit Regulations, Legal Notice No. 101 of 2003. The World Bank also is to clear the project report consistent with the Bank’s safeguards requirements.
REFERENCES


Kenya gazette supplement Acts *Building Code 2000 by government printer, Nairobi*

Kenya gazette supplement Acts *Land Planning Act (Cap. 303) government printer, Nairobi*

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

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

Kenya gazette supplement Acts *Physical Planning Act, 1999 government printer, Nairobi*

Kenya gazette supplement Acts *Public Health Act (Cap. 242) government printer, Nairobi*


Resettlement Policy Framework

The Environmental Management & Coordination Act 1999 (EMCA 2015).

World Bank Safeguards Documents
  - Environmental Assessment (OP 4.01) Safeguard
  - Involuntary Resettlement (OP 4.12) Safeguard
Annexure

vii. Design Layout
viii. Plate of Photographs of Proposed Site
ix. Summarized Bill of Quantities
x. Sample Chance Find Procedures
xi. Consultations and Public Participation
   a. Minutes of Stakeholder Meetings
   b. Signed-in Attendance Sheets
   c. CPP Questionnaires – Sample. All included in hard copy
xii. Grievance Redress Mechanisms Documents

Design Layout
Parking lot area of approximately 5200 m² with estimated 120No. parking slots

Plate of Photographs of Proposed Site
Earth road to be upgraded with the parking slots along the side

Area of proposed parking lots abutting from main highway

Frontage towards Athi River GK Prison

**Summarized Bills of Quantities**
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>BILL NO. 1 - GENERAL</td>
<td></td>
<td>5,414,000.00</td>
</tr>
<tr>
<td>BILL NO. 4 - SITE CLEARANCE</td>
<td></td>
<td>500,000.00</td>
</tr>
<tr>
<td>BILL NO. 5 - EARTH WORKS</td>
<td></td>
<td>7,900,000.00</td>
</tr>
<tr>
<td>BILL NO. 8 - CULVERTS AND DRAINAGE WORKS</td>
<td></td>
<td>6,418,000.00</td>
</tr>
<tr>
<td>BILL NO. 9 - PASSAGE OF TRAFFIC</td>
<td></td>
<td>300,000.00</td>
</tr>
<tr>
<td>BILL NO. 11 - WALKWAYS</td>
<td></td>
<td>1,120,000.00</td>
</tr>
<tr>
<td>BILL NO. 12 - QUARRY FILL STONE FOR SUB-BASE AND QUARRY CHIPS FOR BASE</td>
<td></td>
<td>11,820,000.00</td>
</tr>
<tr>
<td>BILL NO. 16 - BITUMINOUS MIX BASES, BINDER COURSES AND WEARING COURSES</td>
<td></td>
<td>0.00</td>
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<td>BILL NO. 17 - CONCRETE WORKS</td>
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<td>12,560,000.00</td>
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<td>BILL NO. 20 - ROAD FURNITURE</td>
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<td>1,776,000.00</td>
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<tr>
<td><strong>SUB - TOTAL 1</strong></td>
<td></td>
<td><strong>47,808,000.00</strong></td>
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<tr>
<td><strong>ADD 7.5% FOR CONTINGENCIES</strong></td>
<td></td>
<td><strong>3,585,600.00</strong></td>
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<tr>
<td><strong>SUB - TOTAL 2</strong></td>
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<td><strong>51,393,600.00</strong></td>
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<tr>
<td><strong>ADD 16% VAT</strong></td>
<td></td>
<td><strong>8,222,976.00</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>59,616,576.00</strong></td>
</tr>
</tbody>
</table>

**Sample Chance Find Procedures**
Chance find procedures are an integral part of the project EMMP and civil works contracts. The following is proposed in this regard:

If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Ministry of State for National Heritage and Culture take over;
- Notify the supervisor, Project Environmental Officer and Project Engineer who in turn will notify the responsible local authorities and the Ministry of State for National Heritage and Culture immediately (within 24 hours or less);

Responsible local authorities and the Ministry of State for National Heritage and Culture would then be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the National Museums of Kenya. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values.

Decisions on how to handle the find shall be taken by the responsible authorities and the Ministry of State for National Heritage and Culture. This could include changes in the layout (such as when finding irremovable remains of cultural or archeological importance) conservation, preservation, restoration and salvage.

Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.

Construction work may resume only after permission is given from the responsible local authorities or the Ministry of State for National Heritage and Culture concerning safeguard of the heritage.

**Consultations and Public Participation**

**PROPOSED CONSTRUCTION OF KITENGELA PARKING LOTS**
MINUTES OF MEETING HELD ON 18TH OCTOBER 2017 WITH STAKEHOLDERS ON ESIA AT THE SITE AT 10.00 AM

In Attendance
1. Eng. Stephen Mwaura NaMSIP
2. Eng. Malika Badiribu Wachira PIT, Kajiado County
3. Purity Wanjiku Kajiado County
4. Michael Shukare Kajiado County
5. Hon. Francis Kaesha MCA Oloosirkon/ Sholinke Ward
7. Francis Pere Ward Admin, Kitengela
8. Washington Sekut Ward Admin, Oloosirkon/ Sholinke

Other Stakeholders In Attendance
See the attendance sheet.

Agenda
1. Introduction
2. Project Briefing
3. Plenary
4. A.O.B

<table>
<thead>
<tr>
<th>Minute No.</th>
<th>Details</th>
<th>Response/ Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The area MCA Hon. Kaesha welcomed all stakeholders present to the meeting and invited Mr. Washington Sekut to pray for the meeting.</td>
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<tr>
<td></td>
<td>Eng. Malika thanked all the stakeholders for turning up for the meeting.</td>
<td></td>
</tr>
</tbody>
</table>

| 2.0        | Project Briefing |                          |
|            | Eng. Malika told stakeholders that the project was a NaMSIP project, a program supported by World Bank. In brief, the program was started back in the year 2012, and Kajiado County, among other 5 counties within the metro region, had benefited. Kajiado county was |                          |
given USD 6,000,000 in which, where Kitengela, Ngong and Ongata Rongai got USD 2,000,000 each. Some projects were selected and the parking is one of them.

She continued saying that, the NaMSIP team had proposed to utilize the road reserve to do the parking bays but they were not able to get clearance from KeNHA. In that regard, an alternative site had to be sought and it was agreed that it should be a county land free of any disputes. After a lot of deliberations, it was agreed that the JCN Namanga Road-Prisons gate, a 900m road was ideal. She appealed to all stakeholders for support and cooperation during the implementation of the project.

| 2.02 | Eng. Stephen Mwaura from NaMSIP added that, as a World Bank requirement, it is important to carry out ESIA (Environmental and Social Impact Assessment) for any project before its commencement. This is to ensure that all stakeholders that are directly and indirectly affected by the project are safe of any environmental and social hazards that they feel the project could bring about. He also noted that the Kenyan Constitution 2010 greatly emphasizes on Public Participation. He added that each person’s views will be captured and all questions pertaining to the project shall be answered accordingly.

He continued saying that he had a set of questionnaires which, through his guidance required to be filled by each person in attendance and the report shall be submitted to National |
<table>
<thead>
<tr>
<th></th>
<th>Environmental &amp; Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>Plenary</td>
</tr>
<tr>
<td>3.01</td>
<td>Mr. Isaac Otieno, requested that casual jobs be given to the locals once the project commences.</td>
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<tr>
<td></td>
<td>Eng. Mwaura assured them that the contractor is usually advised to use local labor.</td>
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<td></td>
<td>The area MCA, Hon Kaesha said that a project management team shall be set up to look into that.</td>
</tr>
<tr>
<td>3.02</td>
<td>Mr. Bernard Mwendo said that the project should be for the benefits of the residents of Kitengela.</td>
</tr>
<tr>
<td></td>
<td>Eng. Malika said that the project will definitely improve the face of Kitengela town besides bringing job opportunities to the residents.</td>
</tr>
<tr>
<td>3.03</td>
<td>Mr. Edwin Odhiambo asked whether drainage and storm water management shall be taken care of by the project.</td>
</tr>
<tr>
<td></td>
<td>Eng. Mwaura assured the stakeholders that all the drawings were ready and all factors of storm water management have been taken into consideration.</td>
</tr>
<tr>
<td>3.04</td>
<td>Mr. Longton Jamil asked how the county government shall safeguard the cabro paving blocks from overloaded vehicles since this would destroy the cabro paving blocks.</td>
</tr>
<tr>
<td></td>
<td>Eng. Malika assured them that, together with the office of the sub county administrator, Kajiado East measures shall be put to ensure that no overloaded vehicle uses the road and the parking is only designated for parking.</td>
</tr>
<tr>
<td>4.0</td>
<td>A.O.B</td>
</tr>
</tbody>
</table>

|   | Environmen Management Authority (NEMA) for approval and subsequent issuance of certificate |
| There being no other business, all stakeholders were given copies of questionnaires and with assistance of Eng. Mwaura they filled and handed them back to him. |
| The meeting ended at 11.00am |

Signed:

Secretary…………………………………………………….. Date………………..

Chairman…………………………………………………….. Date………………..
<table>
<thead>
<tr>
<th>#</th>
<th>Name of Participant</th>
<th>Organization</th>
<th>Time</th>
<th>Name</th>
<th>Signature</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Eng. Stephen Mwaura</td>
<td>NaRMS IP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Monica Tembo</td>
<td>Businessman</td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>Lilian Muga</td>
<td>Resident</td>
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<td>4</td>
<td>Elizabeth Muga</td>
<td>Businessman</td>
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<td>5</td>
<td>David Kariuki</td>
<td>Resident</td>
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<tr>
<td>6</td>
<td>Dorcas Muga</td>
<td>Businessman</td>
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<td>7</td>
<td>Ednah Muga</td>
<td>Resident</td>
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<td>8</td>
<td>Dedeo Muga</td>
<td>Businessman</td>
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<td>9</td>
<td>Oluex Muga</td>
<td>Resident</td>
<td></td>
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<tr>
<td>10</td>
<td>Francis Kibii</td>
<td>Residents</td>
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<tr>
<td>No.</td>
<td>Name</td>
<td>Position</td>
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<tr>
<td>1</td>
<td>Charles Ali</td>
<td>Resident</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ros</td>
<td>Resident</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Kambusu</td>
<td>Resident</td>
<td></td>
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<tr>
<td>4</td>
<td>Nderi</td>
<td>Resident</td>
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<tr>
<td>5</td>
<td>Muthegi</td>
<td>Resident</td>
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<tr>
<td>6</td>
<td>Kiboi</td>
<td>Resident</td>
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<td>7</td>
<td>Njoroge</td>
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<td>8</td>
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<td>Charles Kigoro</td>
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<td>13</td>
<td>Marie缺名字</td>
<td>Resident</td>
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<tr>
<td>14</td>
<td>Charles Kiboeu</td>
<td>Resident</td>
<td></td>
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<tr>
<td>15</td>
<td>Francis Scento</td>
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<tr>
<td>16</td>
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<td>17</td>
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<tr>
<td>18</td>
<td>Charles Kiboi</td>
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<tr>
<td>19</td>
<td>Richard Mwaura</td>
<td>Resident</td>
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<td>22</td>
<td>Samuel Mwaura</td>
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<td>23</td>
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<td>24</td>
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<td>25</td>
<td>Charles Kiboeu</td>
<td>Resident</td>
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Environmental & Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region
Environmental & Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region
### Environmental & Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region

#### Table: Participants and Responsibilities

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Samuel Sebiro</td>
<td>Leader</td>
</tr>
<tr>
<td>42</td>
<td>Louis Jnr</td>
<td>Leader</td>
</tr>
<tr>
<td>43</td>
<td>MCA Francis K.</td>
<td>Member</td>
</tr>
<tr>
<td>44</td>
<td>MCA Paul M.</td>
<td>Member</td>
</tr>
<tr>
<td>45</td>
<td>Group 1</td>
<td>Group</td>
</tr>
<tr>
<td>46</td>
<td>Group 2</td>
<td>Group</td>
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<td>47</td>
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</table>
Environmental & Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region

Environmen

Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region

82
Consultations & Public Participation Questionnaires – Sample of one (Several others will be attached in the final copy)

This questionnaire is intended to ensure there is adequate Public Participation & Consultation before implementation of the said project – Rehabilitation and improvement of Kitengela Parking Lot in Kitengela Town of Kajiado County. It is proposed this questionnaire is filled and signed by members of the surrounding community and institutions in the area of the said project, as required by the National Environment Management Authority, NEMA and World Bank.

Project Name: Rehabilitation and improvement of Kitengela Parking Lot in Kitengela Town of Kajiado County

Project Proponent: State Department of Housing & Urban Development

Date: Wednesday, October 18 2017

1. Are you aware of the construction of this project and do you know its exact location?
   Yes ☑ No

2. Do you think this project will affect the normal land use in the area and if so in what way?
   No

3. Are there historical or cultural heritage that would be affected by this project? If so, state them.
   No there are not

4. Are there hydro-geological (ground-water) or surface water resources condition that will be affected by this project? If so, state them.
   Yes there is surface water resources that will need drainage.

5. Do you think there will be any wastes generated during this project and how do you propose that is handled?
   Yes and will be collected and disposed by Resdients.

6. What are the expected POSITIVE impacts of the project from construction phase through to commissioning and operations phases?
   Good flow of vehicle movement.

7. What are the expected NEGATIVE impacts of the project from construction phase through to commissioning and operations phases?
   No negative impacts.
8. Do you think construction, commissioning and operations will cause any problems of aesthetics, noise, lighting etc? Please explain.

Yes, noise will affect the business people working in construction areas.

9. Is this construction going to affect the environment negatively in any way you know or think of? Please explain.

No effects.

10. What environmental hazards would you associate with this project during construction, commissioning and operations?


11. What suggestions would you make to mitigate any adverse environmental impacts during the project construction, commissioning and operations?

Move to standard.

12. In your conclusion, do you welcome the project in the said area?

Yes, there will be generally joy for all residents.

13. Any relevant observations, recommendations or comments on this project.

Benefit to all residents.

Name (Optional): Robert M. Modica

ID Number (Optional): 2796943

Telephone (Optional): 0726696571

Signature: (With Company Stamp if Institution)
1. **Steps in dealing with grievances**

1.1. Complaint received in writing from affected person

1.2. Recording of grievance in standard form to make a grievance log

1.3. Reconnaissance site visit with the complainant.

1.4. Submission of detailed complaint to Resident Engineer for resolution by negotiation.

1.5. Submission of detailed complaint to the Grievance Committee for resolution by mediation.

1.6. Submission of complaint to NaMSIP for resolution.

2. **Composition of grievance committee**

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Organization</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Eng. Michael Nderitu</td>
<td>Resident Engineer</td>
<td>Nairobi City County</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Committee Secretary</td>
</tr>
<tr>
<td>2</td>
<td>County Ward Administrator</td>
<td>Kajiado County</td>
<td>Committee Assistant Secretary</td>
</tr>
<tr>
<td>3</td>
<td>Site Administrator / Agent</td>
<td>Contractor</td>
<td>Member</td>
</tr>
<tr>
<td>4</td>
<td>Community Member</td>
<td>Local communities</td>
<td>Community Representative</td>
</tr>
<tr>
<td>5</td>
<td>Business Member</td>
<td>Business members</td>
<td>Business Representative</td>
</tr>
</tbody>
</table>

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**Environmental & Social Impact Assessment Project Report for the Construction of Kitengela Parking Lot in Kajiado County of Nairobi Metropolitan Region**

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**Grievance Resolution Procedure**

- **Recording of grievance in standard forms / grievance log**
- **Receipt of Complaint Form/ Person**
- **Reconnaissance site visit**
- **Can the grievance be resolved by the Resident Engineer’s office?**
  - **Yes** – 3 days
  - **No**
- **Can the grievance be resolved by Grievance Committee?**
  - **Yes** – 7 days
  - **No**
- **Submission of grievance to NaMSIP for resolution.**
- **Grievance resolved**
- **STORAGE OF ALL GRIEVANCE RELATED DOCUMENTS**

**NB:**
- All complaints should be received in the standard form to authenticate them
- All resolved grievances need to be stored in the form of a retrievable grievance log
- All complaints need to be resolved within 7 days from receipt of complaint.
- All need to be made aware of the existence and utility of this grievance mechanism.